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ABSTRACT

This document summarizes 431 reports of reading research published between July 1, 1973, and June 30, 1974. The research studies are categorized into six major areas, four of which have been further subcategorized. The majority of studies reported were classified into the physiology and psychology of reading area. Large subdivisions under that major category include the following: visual perception, auditory perception, reading and language abilities, and factors related to reading disability. Under the teaching of reading category, testing is one of the larger subcategories. A large grouping of studies in the sociology of reading is concerned with the content analysis of newspapers, books, texts, and other printed materials. A listing of other bibliographies and reviews of reading research appears as the first major category of the present summary. Reviews are classified under specific subcategories or placed under a miscellaneous subheading. An annotated bibliography appears follcwing the written text. (Author/RB)

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Summary of investigations relating to reading July 1, 1973, to June 30, 1974

SAMUEL WEINTRAUB, HELEN M. ROBINSON, HELEN K. SMITH, GUS P. PLESSAS, *and* MICHAEL ROWLS

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The annual summary—50 years of publication

In 1925, William S. Gray authored the first in a continuing series of annual summaries. At that time, Dr. Gray identified 436 reading studies which had been published prior to 1925. In the present summary, 431 studies have been included for the year July 1, 1973, to June 30, 1974. The number of studies identified and summarized over the years now totals 8,230.

The first summary appeared in a monograph entitled *Summary of Investigations Relating to Reading* (Supplementary Educational Monographs, No. 28, University of Chicago Press). From 1926 through 1932, the summaries appeared in the *Elementary School Journal*. In the years from 1932 through 1960, they were published in *The Journal of Educational Research*, and from 1961 to 1965 appeared in *The Reading Teacher*. Since that time, the summaries have comprised one issue each volume year of the *Reading Research Quarterly*.

The continuation of the summary over its 50 years of existence is due primarily to 2 remarkable people—Dr. Gray and Helen M. Robinson. Dr. Gray wrote the summary for a period of 35 years until his death in 1960. Dr. Robinson undertook the summary then and has continued with it, first as the major author and then as a contributing author until the present day. Because of these 2 individuals, a store of research materials easily identified is available to the field of reading. To our knowledge no other area in education has such an extensive catalog of research literature at its disposal. Even prior to ERIC, researchers in the field of reading could find quickly and easily what had been done in some aspect of reading. Two other of the original co-authors—Helen K. Smith and Samuel Weintraub —are still active in preparing the summary.

Several changes have occurred over time related to the inclusion and categorization of materials. At one time, some master's theses were summarized along with other materials. As the amount of published literature increased, it was decided to limit the materials included to published sources only. Similarly as the sources of published literature grew, the number of journals monitored increased until it now lists well over 200. When new journals including reading research are identified, they are added to the list to be monitored. In a like vein, as the amount of literature increased, it became necessary to define more rigidly what is meant by *published*. Thus dissertations, U.S. Office of Education reports, and mimeographed reports

emanating from a school system or university research office are not included. Locating and identifying such diverse materials would constitute an almost impossible task.

A second important change occurred in the early 1960's when Dr. Robinson first assumed the major authorship. One of her major contributions has been the development of the categorization scheme now used. Because of this categorization scheme, materials are more easily catalogued and retrieved.

The source of support for the summary changed recently. Originally the work of locating and compiling the materials was supported personally by Dr. Gray, and later it was supported with monies from the Gray Reading Research Fund. For a short period, funds were obtained through ERIC/CRIER to support the work of the summary. More recently, IRA has undertaken the support of the summary, thereby permitting its continuation.

The summary does not present a critical review of the research, and was never intended to do so. It is a depository of all that has been done, regardless of merit. The summary must be judged in this light. It is hoped that it will continue to be funded as a unique and useful tool in an ever growing field.

—R. Farr
—S. Weintraub

*Summary of investigations relating to reading July 1, 1973, to June 30, 1974**

SAMUEL WEINTRAUB, *State University of New York at Buffalo*
HELEN M. ROBINSON, *Emeritus, University of Chicago*
HELEN K. SMITH, *University of Miami*
GUS P. PLESSAS, *California State University, Sacramento*
MICHAEL ROWLS, *University of South Carolina*

SUMMARIZES 431 REPORTS of reading research published between July 1, 1973, and June 30, 1974. The research studies are categorized into 6 major areas, 4 of which have been further subcategorized. The majority of studies reported was classified into the Physiology and Psychology of Reading area. Large subdivisions under that major category include the following: Visual Perception, Auditory Perception, Reading and Language Abilities, and Factors Related to Reading Disability. Under the Teaching of Reading category, the Testing subcategory remains one of the larger divisions. A large grouping of studies in the Sociology of Reading is concerned with the content analysis of newspapers, books, texts and other printed materials. A listing of other bibliographies and reviews of reading research appears as the first major category of the present summary. Reviews have been classified under specific subcategories or placed under a Miscellaneous subheading. An annotated bibliography appears following the written text.

Résumé des investigations portant sur la lecture, du 1er juillet 1973 au 30 juin 1974

RÉSUME 431 RAPPORTS dans le domaine de la lecture publiés entre le 1er juillet 1973 et le 30 juin 1974. Les rapports sont répartis sous 6 rubriques principales dont 4 ont été subdivisées à leur tour. La majorité des études a été groupée sous la rubrique intitulée "La Physiologie et Psychologie de lecture". De grandes subdivisions ont été faites sous cette catégorie principale et contiennent les rubriques suivantes: "La Perception visuelle", "La Perception auditive", "L'Aptitude au langage et à la lecture", ainsi que "Les Facteurs touchant à l'inhabileté en lecture". Sous "L'Enseignement de lecture", la subdivision ayant trait à l'administration des tests est une des plus nombreuses de toutes les subdivisions de cette rubrique. La plupart des études comprises sous l'enseigne de la sociologie de la lecture se rapporte à l'analyse textuelle de journaux, de livres, ainsi que de divers matériaux de lecture. Une liste d'autres bibliog-

* Articles for the summary were identified by Michael Rowls and Carol Greenfield, formerly graduate students at Indiana University. Support for the annual summary came primarily from IRA with additional funds from Scott, Foresman and Company.

raphies et de comptes rendus sur la recherche en matière de lecture paraît comme la première catégorie principale de ce volume. Les comptes rendus ont été placés soit sous de catégories spécifiques, soit sous la rubrique "Études diverses". Une bibliographie annotée suit ce text écrit.

Resumen de las investigaciones relacionadas con la lectura, publicadas entre el 1º de Julio de 1973 y el 30 de Junio de 1974

SE EFECTUA UN RESUMEN de 431 informes sobre investigaciones realizadas en el campo de la lectura, publicados entre el 1º de Julio de 1973 y el 30 de Junio de 1974. Los estudios de investigación se clasifican en 6 categorías principales, siendo 4 de ellas, a su vez, subclasificadas. La mayoría de los estudios presentados se clasifican dentro del área de la Fisiología y Psicología de la Lectura. Dentro de las numerosas subdivisiones que pertenecen a la categoría principal, se encuentran las siguientes: Percepción Visual, Percepción Auditiva, Aptitud para la Lectura y el Lenguaje, y Factores Relacionados con la Inaptitud para le Lectura. La subclasificación denominada Examinación, constituye una de las mayores divisiones correspondientes a la categoría de la Enseñanza de la Lectura. La gran agrupación de estudios efectuados en Sociología de la Lectura, se refiere al análisis del contenido de periódicos, libros, textos y otros materiales impresos. En la primera categoría principal del presente resumen, aparece una lista de otras bibliografías y reseñas realizadas en la investigación de la lectura. Las reseñas han sido clasificadas en subclasificaciones específicas, o colocadas bajo el subtítulo de Miscelánea. A continuación del texto aparece una bibliografía comentada.

Introduction

This year's annual summary contains the greatest number of studies identified in its 50-year history. For several reasons, the summary is limited to journals in English. Several in other languages are monitored and their articles abstracted if there appears a relatively lengthy English summary of the report.

Readers of research are referred again to 2 columns of interest—"Researchlight" and "Research Report." The former appears in *The Reading Teacher*, the latter in *Elementary English*.

Each study abstracted in the text of this summary is followed by a number in parentheses which refers to the alphabetical annotated bibliography found after the text.

I. *Summaries of specific aspects of reading research*

This section lists published summaries of research, including annotated bibliographies, syntheses and analyses of research, and critical reviews of specified research reports and/or of research design in general. The summaries have been classified under topic headings whenever 2 or more articles related to a single topic appear. The *Miscellaneous* category is a listing of summaries where no more than one article on a given topic appeared.

I-1 General summaries

1972 review of research on college-adult reading, by Bliesmer (34).

1972 review of research on college-adult reading, by Bliesmer (35).

Annotated bibliography of research in the teaching of English: January 1, 1973 to June 30, 1973, by Dieterich (78).

Annotated bibliography of research in the teaching of English July 1, 1973 to December 31, 1973, by Dietrich (79).

Reading research—1972, by Goodacre (126).

Reading research in Britain—1973, by Goodacre (127).

A summary of research studies relating to language arts in elementary education: 1972, by Sheldon, Lashinger, and Carney (355).

Language arts in early childhood education, by Vukelich (403).

Summary of investigations relating to reading, July 1, 1972, to June 30, 1973, by Weintraub, Robinson, Smith and Roser (410).

I-2 Learning disabilities—reading retardation

Learning disabilities: a new stereotype, by Bryan (46).

Differential diagnosis: assets and liabilities, by Hartman (151).

Optometric vision training programs for children with learning disabilities: review of issues and research, by Keogh (197).

The scope of the reading problem, by Reid (314).

WISC subtest scores of disabled readers: a review with respect to Bannatyne's recategorization, by Rugel (332).

Reading and its difficulties, by Vernon (400).

I-3 Adult reading

Research on books and reading in society in the United Kingdom, by Chandler (53).

Areas of concern about adult reading, by Kingston (200).

I-4 Language and reading

Seven fallacies: reading retardation and the urban disadvantaged beginning reader, by Cohen and Cooper (61).

Language experience for dialectically different black learners, by Foerster (108).

The validity of the "different language explanation" for poor scholastic performance by black students, by Hall and Turner (140).

Relationship of thought, language, and non verbal communication to reading, by Vernon (401).

I-5 Teacher education

Teaching behaviors in reading instruction, by Emans and Fox (95).

The preparation of classroom teachers to teach reading, by Harris (150).

Research on performance-based teacher education: problems and promises, by Jongsma (187).

I-6 i.t.a.

i.t.a. revisited, by Mazurkiewicz (251).

The initial teaching alphabet, by Southwell (367).

I-7 Readiness

Readiness for school: a look at some critical issues, by Gredler (130).

Assessment of pre-reading skills: a review of frequently employed measures, by Pikulski (302).

I-8 Beginning reading

Requirements of the early reading task, by Belmont (23).

The topsy-turvy world of "sight" words, by Groff (133)

The development of beginning reading skills: recent findings, by Hardy (144).

I-9 Readability

Tailoring science writing to the general audience, by Funkhouser and Maccoby (117).

Cloze tests of second language proficiency and what they measure, by Oller (287).

Using cloze to select appropriate level instructional materials, by Pennock (295).

An introduction to the cloze procedure: an annotated bibliography, by Robinson (320).

I-10 Research design

Generalization variables and restricted hypotheses, by Coleman (65).

The simplest experimental design that permits multiple generalization, by Coleman (66).

'Vexing problems' revisited: pitfalls for the unwary researcher (a reaction to Kennedy and Weener), by Wardrop and Essex (406).

I-11 Dyslexia

Developmental dyslexia: a review of prevailing diagnostic criteria, by Boder (38).

Cognitive factors in dyslexia, by Downing (82).

Dyslexia—a summary of representative views, by Jani (176).

I-12 Miscellaneous

Group cohesiveness and reading instruction, by Alexander and Filler (5).

The psychology of reading, by Chester (55).

Is literacy acquisition easier in some languages than in others? by Downing (83).

A summary of evidence related to the cognitive clarity theory of reading, by Downing (84).

The sociology of reading, by Dulin (87).

Sex differences in reading: an evaluation and a critique of current theories, by Dwyer (92).

Empirical examination of critical reading and critical thinking—overview, by Follman and Lowe (109).

Reading comprehension: the empirical literature, by Follman, Lowe, and Pfost (110).

Alphabet discrimination and distinctive features: research review and educational implications, by Guralnick (134).

Visual-motor processes: can we train them?, by Hammill, Goodman, and Wiederholt (141).

Research on reading a second language, by Hatch (153).

A critical review of the research in teaching vocabulary to secondary students, by Helm (156).

Key articles in advertising research, by Holbert (163).

The effectiveness of alternative instructional media: a survey, by Jamison, Suppes, and Wells (175).

The teaching of reading, by Johnson (183).

Blacks as communicators and interpreters of mass communication, by Kassarjian (189).

Lateralization, language learning, and the critical period: some new evidence, by Krashen (209).

What about formal reading instruction in kindergarten?, by Miller (271).

The measurement of reading flexibility, by Rankin (310).

The relation of perceptual-motor skills to learning and school success, by Saphier (345).

The physiology of reading, by Smith (364).

Psychological and cultural factors in learning to read, by Spache (368).

Motivational and attitudinal influences on reading development, by Azcoaga (16).

The effects of reading on children and youth, by Huus (172).

Perspectives on reading research, by Malmquist (242).

Critical reading, by Smith (363).

Flexibility and speed in reading, by Berger (25).

Multivariate analysis: new light on reading in literature instruction, by Thompson (387).

Four-year college reading improvement programs and grades: an annotated review, 1945-1971, by Tillman (391).

The effect of motivational and emotional factors on learning to read, by Vernon (399).

Explosion of a myth: quantity of schooling and exposure to instruction, major educational vehicles, by Wiley and Harnischfeger (413).

II. *Teacher preparation and practice*

Roeder, Beal, and Eller (321) conducted an investigation to determine how many United States 4-year colleges and universities required one course in the teaching of reading for undergraduates enrolled in elementary, secondary, or junior high teacher education programs. Questionnaires were mailed to a total of 945 colleges and

universities offering elementary curricula and to 1,035 offering secondary education programs. At the elementary level, 916 or 97.4 per cent responded, with 860 of those proving usable. At the secondary level, there were 972 usable responses. For the elementary programs, 89 per cent of the schools required at least one course in the teaching of reading. Of these, 16.6 per cent combined reading with another methods course. Approximately 3 per cent of those surveyed reported that they had other required courses in reading beyond the basic one. In addition, over 83 per cent required a course in language arts, but 19.4 per cent did not require a children's literature course and another 58 per cent did not require a course in measurement. At the secondary level, 80 per cent of the schools did not require a reading methods course. At the junior high level, 70 per cent did not.

An open-ended interview schedule was used by Lichtman (229) to collect data on problems in teaching reading from professional educators in 4 different job categories: principals, administrators and directors, classroom teachers, and reading professionals. All were in the Washington, D.C. area. Interviews were conducted by graduate students. Three major areas of concern were identified by interviewers as serious problems. These were low student achievement, inadequately prepared teachers, and difficulty in meeting individual needs. The major remedy offered was to have more and better teachers and improved teacher training. Materials, methodology, and motivation were all expressed as concerns. When asked to suggest specific remedies for their reading problems, the provision of auxiliary or special personnel was most frequently noted. Alternative school organizational structures and volunteer tutors were also mentioned. Questions as to the causes of reading retardation elicited home background or cultural differences and inadequately trained or poor teachers as the most frequent responses. While 80 per cent of respondents were familiar with the Right to Read program, one-third felt that it had little or no impact; another third felt that it did have impact on reading instruction.

Ahern and White (4) polled reading consultants from 43 states and 4 Canadian provinces concerning their positions. They were all in-state or provincial departments of education. All consultants responding had at least a master's degree, one-third had completed work beyond the master's, and another third had earned doctorates. Nearly all had taught at the elementary level and half had also had experience in high school and administrative positions.

A number of signs of progress were identified by the various consultants. These included, among others, legislation on reading, public interest and volunteer action, more research and wider dissemination of results, criterion referenced tests and individualization in teaching of reading. Their greatest concern was with teaching, and inadequate preparation of teachers was frequently given as the problem. The ideal consultant was profiled as one who is evaluator, disseminator, administrator, communicator, organizer, and leader. When asked to designate what would be top priority under ideal conditions, working directly with classroom teachers was most frequently listed. Job definitions varied markedly and depended upon several factors, including the complexity of the state education department.

Rutherford and Weaver (334) administered 564 questionnaires to teachers in 27 elementary schools. The schools were randomly selected from 54 in Austin, Texas. Questionnaires were based on those administered in a Midwestern study and attempted to identify the felt needs of elementary teachers regarding their initial and continuing preparation for the teaching of reading. A total of 488 usable returns were analyzed. On a 5-item scale, both primary and intermediate teachers checked "adequately" most frequently with "inadequate" as the second most frequent response as to how well their preservice education had prepared them for teaching reading. In terms of time when they felt preservice reading instruction was most valuable, prestudent teaching tended to be most preferred. Diagnosis, meeting the needs of the disabled reader, and methods were indicated as the areas they currently felt a need for information about. In terms of how they preferred inservice education to be presented, live demonstrations were the most frequent choice. When comparisons were made with the Midwestern study, findings tended to be quite similar.

A tabulation of the performance criteria selected by 401 undergraduate education students enrolled in a reading-language arts course was presented by Yarington and Kotler (423). Students were required to complete 21 performance criteria from a listing of 143 alternatives. Enrollees in the course included 115 who had completed student teaching and 286 who had not student taught. One performance criteria was selected by all students. It involved reading and writing a reaction to a book. Only 4 other performance criteria were chosen by over 50 per cent of the students. These were in grouping procedures, reading readiness, i.t.a., and forming cursive and manuscript letters. Other frequently chosen topics included in-

formal reading inventories, children's literature, linguistic approaches, and readiness tests. There did not appear to be significant differences in the choices of performance criteria between those who had done student teaching and those who had not. The authors concluded that students had no basis on which to select performance criteria which might have been useful to them, and therefore they randomly chose all.

With a questionnaire, Garry (120) asked randomly chosen, specialized reading personnel employed in the Pennsylvania public schools to react to a list of 50 task competencies in terms of the importance to their position responsibilities and also in terms of the adequacy of their graduate programs in developing the competencies. The list of 50 items was developed through a literature search and through interviews with authorities. Each item was rated on a 5-point scale by the respondents (N not stated). Program preparation appeared to emphasize diagnostic and remedial processes, and these areas were designated as being most important to the position responsibilities. Competencies related to demonstration and knowledge of materials were listed as important for the position but as not having been dealt with adequately in the graduate preparation. Items dealing with the preparation of reports and communication with the public were rated low on both aspects of the questionnaire.

Vavoulis and Raygor (397) polled 38 reading experts by means of a questionnaire about the types of courses useful for a college reading and study skills specialist at the master's degree level. Responses were received from 35 individuals. Generally, a basic foundation in reading at all levels was thought to be essential. Over 80 per cent wanted a course specifically on college learning difficulties included, and 66 per cent wanted a research course as well as a materials course included. Courses in special education, counseling, and language arts were not seen as essential to a college reading specialist's program.

Long and Henderson (232) studied the effects of various pupil and teacher characteristics upon teachers' ratings of a pupil's probable success in learning to read. Pupil characteristics studied were *race* and *social class* (lower or middle). Subjects were 120 white female elementary teachers, all of whom had taught at least 2 years. Half of the teachers were Southerners and half, non-southern. The researchers gave teachers a description of 12 boys that included readiness test scores (high, average, or low), activity level (active or passive), and attention (attention or not). A repeated measures

analysis of variance was used to analyze the data. Readiness test scores appeared to have the strongest effect on ratings with the effect of attention somewhat stronger than activity. Active level of activity was rated higher than passive, and attentive children were rated higher than inattentive ones. Among the interactions, test score by attention was strongest, suggesting that attentiveness had a stronger effect for high and average scorers than for low scorers. Non-southern teachers appeared to have a positive bias for low-scoring blacks, whereas southern teachers had a bias for low-scoring whites.

In Ayers' study (15) principals in 400 randomly selected Southeastern schools were asked to rank 8 factors in terms of importance for beginning reading. Responses were received from 180 elementary and 158 non-elementary principals. Both groups ranked mental age as most important. Elementary principals then listed background, emotional adjustment, school adjustment, vision, hearing, desire to read, and health and vigor as important in that order. Non-elementary principals followed mental age with vision, desire to read, background, emotional adjustment, school adjustment, health and vigor, and hearing. The author states that comparisons of these rankings with those made by elementary teachers in an earlier reported study were relatively similar.

In an effort to investigate the beliefs of teachers utilizing 2 quite different types of beginning reading programs, Mayes (250) had her subjects respond to 3 instruments: the Teacher Practices Inventory, the Personal Beliefs Inventory, and the Dogmatism Scale. The first 2 measures investigate what a teacher believes. The third inventory measures degree of open-mindedness or closed-mindedness and is an assessment of how a teacher believes. A total of 20 teachers responded to the 3 instruments. Of these, 10 used a basal reading program and 10 used DISTAR. The Mann-Whitney U Test, used to compare scores of the 2 groups, showed no significant differences between the teachers on any of the instruments.

A comparison of the reading test performance of 2 groups of Wisconsin teachers was reported by Dahlke (70). The *Diagnostic Reading Survey Test* was administered in 1965 and 1966 to 4 inservice reading classes; 2 in Wisconsin (N = 57) and 2 in Florida (N = 45). The mode for both groups fell in the 0-9 percentile range for the total comprehension score. For the vocabulary score, the mode fell in the 0-9 percentile range for the Florida group and in the 30-39 percentile range for the Wisconsin group. In 1972, a different form of the same test was given to 3 graduate classes in reading (N = 61) at a Wisconsin campus. Scores for this group were compared with those

achieved by the earlier Wisconsin group. There was no significant difference in vocabulary scores, but there was a significant increase in the total comprehension score for the 1972 group over the earlier group.

In the report by Ilika and Sullivan (173), 25 students enrolled in a reading methods course were assessed for their ability to read flexibly. Subjects were assigned 21 readings in 21 different journals on a self-selective basis. The journals selected were from a limited list and are described as involving challenging professional reading. Students recorded beginning and ending time in reading each article and computed their rates in words per minute. In addition, subjects determined the Fry readability level by using two 100-word passages starting with the second paragraph from the end of each article. The Flesch Reading Ease (RE) level was also computed by the investigators. The authors then analyzed 3 relationships: 1) the Flesch level and rate, 2) the Fry readability level and rate, and 3) the degree of correlation between the readability levels as determined by the 2 means. No relationship was found between either the Fry readability level or the RE level and rate of reading, thereby indicating a low degree of reading flexibility. A coefficient of correlation of .85 was found between the 2 readability levels computed.

Porterfield (305) studied the effect of inquiry-discovery science instruction on question-asking of teachers while teaching reading. Eight teachers each at grade levels 2 and 4 were instructed in the Science Curriculum Improvement Study (SCIS) approach involving 9 levels of questions. A like number of teachers served as the control group. All 32 teachers were observed as they taught 2 basal reading lessons and their questions recorded. The 8,080 questions asked were classified on the Teacher Question Inventory. A significantly larger proportion of the questions asked by the control group were of the type requiring only recognition or recall. No significant differences were noted between the 2 groups for the demonstration of skills category in which pupils were required to show understanding of a principle or generalization by applying it to a lifelike problem or practical social situation. SCIS teachers did significantly better with the category of translation, interpretation, analysis, and synthesis. Experimental teachers did significantly better in the affective categories of opinion and attitude or value.

Deiulio (73) studied the graffiti found on the desks of college classrooms in a building used for professional education courses for the past 25 years. No information was given as to the time period

over which graffiti were collected. Graffiti were then placed into one of 13 categories, 3 of which revolved around curricular matters: Curricular Frustration, Curricular Anxiety, and Doodling-Content. The remaining categories were labelled as non-curricular and included, among others, Personal, General Frustration, General Anxiety, and Need for Understanding. Although data are not presented, the author states that student sentiment toward curricular or instructional activity in professional education tended to be negative with boredom, confusion, anxiety, hostility, fear of failure, and lack of purpose among the predominant emotions. The author suggests several changes in curricular structure as a result of the graffiti study.

III. *Sociology of reading*

A variety of geographical areas are represented in the current review of research related to the sociology of reading. Part of this research was conducted by North American researchers; the remainder was accomplished by native investigators reporting their findings in English. Among the countries represented in this review are Lebanon, Great Britain, Afghanistan, Russia, Canada, Italy, France, Spain, Germany, Scandinavian countries, and Australian countries.

III-1 Use of mass media

Ryan (336) examined the relationships among news content, geographic origin, and perceived credibility. He prepared a questionnaire which was composed of 36 news items taken from the *Chicago Tribune*. Each of 3 major news categories was concerned with the news content (public affairs, science, student demonstrations); each major area was divided into 3 subgroups concerned with geographic origins (state, national, international) of the statements. Four statements for each of the 9 categories were followed by the words *television* and *newspapers*; subjects were asked to circle the medium they would most believe for the news described in the item. The results were analyzed by factor analysis. The 12 statements concerned with the news of student demonstrations clustered into the only content-pure factor which cut across all geographic areas. The medium most believed for the foregoing statements was television. Items falling into the second factor were largely state, national, and international science statements as well as 4 state public affairs items and one national public affairs item. Newspapers were be-

lieved more than was television for the kinds of news in Factor 2. National and international public affairs news statements clustered into the third factor. There was no statistical difference in the proportion of respondents selecting newspapers and those selecting television as the medium most believed for the items in the third factor.

Shaw (354) questioned the sequence of questions in a Roper survey concerned with the credibility of the media, and made a secondary analysis of pertinent variables included in an earlier study. Data were collected from 9 categories of student groups categorized by their majors. For all but 2 of the professional groups, the newspaper was the most relied on medium. Majors in the humanities relied upon both the newspaper and television; students in the broadcast media relied most upon television. Radio was moderately relied upon for news but was not perceived as the most credible medium. Television was considered the most believable medium by all but 3 groups. Advertising and print students found the newspaper to be the most credible medium; law students named television to be the most credible, with only a small margin over the newspaper. A consistency was noted between the sample's perceived reliability of the media and the students' reliance upon the media.

Media effects from print and from broadcasting were analyzed by Wright (420). Identical advertising messages which presented 6 arguments in favor of adopting food products made from soybeans were prepared for print and broadcasting. Subjects in the high content involvement group were told they would be asked to evaluate the product in the advertisement; those in the low content involvement group were given no such information. After being exposed to the message, the subjects responded to a thought-listing measure and to dependent measures of attitudinal acceptance, retention, response weighting, and perceived response origin. A significantly greater total response was evoked by the print medium as compared to the broadcast medium, thus supporting the hypothesis that the information load of broadcasting restricted an individual's ability to generate cognitive responses to the message. Message medium and involvement with the content had significant main and interaction effects on the separate mediating processes, but the effects were different across the mediators.

The study by Lynn (240) explored the awareness of and attitudes toward the advertising council and the evaluation and retention of the public service advertising messages by an examination source, by message, and by receiver effects. Forty-three of the 75

subjects completed 5 instruments: source awareness questions about the Advertising Council, message retention, message evaluation, personal characteristics, and source valence. The remaining subjects were divided into 4 groups, which viewed different sets of filmed commercials and evaluated the content on 7-interval scales. Among the findings are the following: The subjects lacked specific knowledge about the Advertising Council. Source awareness may not be an effective predictor of message evaluation. Credibility-liking attitudes toward the sources are positively related to message evaluation, but no source attitude is related to message retention.

The diffusion of a "happy" news event, the marriage of Canadian Prime Minister Trudeau, was studied by Fathi (100). One-half of the subjects knew of the event within 15 minutes after the news release, largely because of television. Radios and the newspaper proved to be most active sources of information in the early morning hours and interpersonal channels during the working hours and after. Since the news was released after the evening newspaper had been published, very few received the news first through newspapers. Of those who knew about the news event early there were more men than women, more younger and older than middle-aged, and more low and high educational classes than middle educational group. The largest proportion of the ones interviewed who wished to know more about the event used the newspaper for this purpose. The respondents' opinions of Trudeau as a prime minister appeared to be related to their behavior; in general, his fans knew about his marriage half an hour sooner than the others.

An analysis of the television and newspaper news concerned with the 1972 presidential election by Meadow (263) revealed that the coverage of the campaign was similar in both media in respect to the presidential candidates but not the vice presidential candidates. Network news was taped and coded so that all relevant variables could be reviewed and noted. Only weekday broadcasts were analyzed. Three newspapers generally available to the residents of Philadelphia were analyzed with Sunday editions being omitted. Newspaper items were analyzed by the number of items, column inches, and photographs devoted to the campaign or to the candidates with attention being given to front page coverage and editorial comment. Campaign news was classified under several headings for both the presidential and the vice presidential candidates. Television news was coded according to the number of items, the type of report (film report or newscaster), placement in the show, length of time

candidates or their spokesmen were given to speak on camera at rallies, speeches or interviews, and the total time of the item. Although more coverage of the campaign was given to McGovern, Nixon as President gathered more coverage than did McGovern. The Republican vice presidential candidate received more coverage in both media than did the Democratic candidate.

Undergraduate students at 6 Colorado colleges and universities were interviewed by telephone by O'Keefe, Garrett, and Spetnagel (283) to determine the extent and kinds of mass media they used. The subjects were questioned about various aspects of their use of mass media and were specifically asked to name the sources of both first and detailed information on a specific national and a specific local news event, both events having received heavy coverage the week previous to the interviewing. The results of the survey were compared with those in other studies in which older and younger subjects responded. Rather substantial differences between media use patterns of undergraduates and other populations were determined. Undergraduate students spent less time watching television, read slightly fewer newspapers and newsmagazines, and listened to the radio more than older adults. Male undergraduates viewed television and read newspapers more but listened to the radio less than did the female undergraduate students. Television was the medium stated most as the first source of the national-international event, but newspapers were the top choice as the source for hearing about the local event. Television use and newspaper readership increased with age, whereas radio use and movie attendance declined.

The amount and kind of publicity 20 minority groups and 20 comparable, established groups in Minneapolis received during a 10-month period were analyzed by Fedler (101). A content analysis of 2 newspapers was performed. In addition, illustrations were counted and measured. Since the radio and television broadcasts were completed before the study was planned, it was necessary to rely upon the broadcasters' memory and records available at each station. The first hypothesis that newspapers devote more space to established groups and their ideas than to comparable minority groups and their ideas was not upheld. More pictures, editorials, and letters about the minority than of the established groups were also published. More column inches were devoted to news and ideas of the minority than to similar material for established groups. The results also failed to support the second hypothesis that radio and television stations cov-

ered more established groups than comparable minority groups. No attempt was made to determine the significance of this difference because the results were not precise since they were based upon the memories of media staff people. An analysis of the content of the articles and of the pictures upheld the third hypothesis, that the publicity received by minority groups was more likely to concern demonstrations and violence than the publicity received by comparable established groups.

The purpose of the investigation by Wilson (415) was to ascertain whether there is a differential processing by people of the same news message presented by different media: radio, television, and the newspaper. Immediate loss of information was the criterion used to determine the effect of each medium. Two news stories were constructed, one on a topic of interest and one considered to be neutral; otherwise, the stories were as parallel as possible. They were prepared on audiotape and videotape as well as in clipping form. After exposure to randomly assigned media, interest, and length treatments, the subjects prepared interest ratings on a 7-point scale and wrote all of the news story they could recall freely. The greatest loss of information was from radio (76.86 per cent), the second most from television (76.73 per cent), and the least from newspapers (72.48 per cent). Less loss of information occurred from short than from medium length stories and from medium than from long stories. Considerably greater loss resulted from the neutral story than from the interesting one.

The relationship between the media and violence was examined by Dembo (76) who studied the life experiences, values, social behavior, and media use patterns of English boys who had been rated as aggressive or non-aggressive by their peers. The subjects lived in an economically depressed area, were low educational achievers, were equally drawn from the same classes, were not regarded as delinquent, came from working-class backgrounds, had IQ's above 80, and were of the average age of 14. Interviews with the subjects and their parents were the source of the data. After the subjects named programs, films, or reading materials they recently or regularly watched, listened to, or read, they were given a card listing 11 uses-gratifications covering a broad range of media-personal interaction. They were asked to select the uses-gratification title that best represented how they felt when recently using the media. They were later asked probing questions to find out why they mentioned the uses-gratification they did and how their experiences with these

materials made them feel the way they reported. The results showed that the boys made purposive uses of the media and that there were differences in the kinds of uses made of the various media. The behavior both groups of subjects claimed to engage in was in agreement with the ratings of their peers. No significant differences were found in the frequency of contact the aggressive and non-aggressive boys had with books, films, comic books, magazines, newspapers, radios, records, and television. In fact, the data revealed that the 2 groups had contact with similar media materials. From the interview data there was little or no evidence that either group was attracted to aggressive or sensational content in books, magazines, or comic books. Newspapers were popular with both groups with sports stories being the most popular. Their explanations of their interest in news of violence did not show that they were vicariously participating in these events. A study of film and television uses-gratifications revealed a close similarity between the 2 groups in that little attention was given to violence. Dembo concluded that although the media played an important role in the lives of the subjects, they appeared to have little influence in making them aggressive or in teaching them techniques of violence.

To determine the extent and kinds of media exposures in Lebanon, Dajani (71) considered 4 major variables: religious affiliation (Maronites and Shi'ites); community of residence (rural, urban, and transitional); 3 socio-economic classes as defined by the indices of education, wealth, and family prestige; and 3 age groups (teenagers, those between 22 and 35, and the 38 year olds or older). The findings especially related to reading include the following: More Shi'ites than Maronites read newspapers and magazines; but the Maronites, who are more cosmopolitan than the Shi'ites, watched television more and showed more exposure to foreign media in foreign languages. The rural subgroup was exposed to the media much less than the other 2 subgroups. The upper class subjects were more exposed to the media but showed less concern with television than the other 2 groups. The young people read more foreign books and were exposed to more television than the other 2 age groups; the older age group showed somewhat more newspaper exposure but less concern for the other media than the other groups.

Zvonarevic (431) analyzed various aspects of the relationship of mass media (radio, television, and newspapers) to public opinion in Croatia in Yugoslavia. He was particularly interested in the problems of exposure of public opinion to the press and of the

impact of the press on public opinion. Radio was followed by more of those questioned than either television or the newspaper. (The percentage of illiteracy is approximately 12 per cent; many parts of Yugoslavia are not included in the television relaying network). Great diversity was found in newspaper reading by different strata of the population. Men read the daily press more than women did; members of the League of Communists showed significantly greater interest in the press than non-members; wide differences were found in newspaper groups among members of the same occupation. The researcher concluded that the exposure of public opinion to the daily press was quite limited, a fact which creates a boundary to its influence and to the influence of the opinion makers who use it to affect public opinion. Counterbalancing the low readership of the daily press are 2 factors: the existence of a great number of popular local newspapers with simpler language and a highly developed system of oral information giving. To determine the specific influence of the press, the question about the readership of the daily press was cross tabulated with a question concerned with the degree of satisfaction of the subjects with the political conditions in Yugoslavia. The most satisfied were those people who never or only sometimes read the daily newspaper; the least satisfied were those who read it regularly. Several explanations were offered for this finding. In general, the effect of the mass media on public opinion is quite limited. An evaluation of the sensitivity of public opinion makers toward public opinion itself was made by asking the subjects certain questions which had been used previously in public opinion surveys in Yugoslavia and by comparing the answers with the results of other polls. In general, the public opinion makers in this study showed good understanding of the public mood concerning various problems.

III-2 Content analysis of printed sources

The contents of reading primers, including those from the United States, were analyzed by Blom and Wiberg (36) to ascertain what attitudes (both personal and impersonal attributes) were presented and if attitude profiles were alike or different among the countries studied. The investigators devised an attitude scale consisting of 3 major divisions: cultural posture, other-directed posture, and inner-directed posture. The cultural posture group included 12 attitude sets that referred to the manner in which people lived, such as family togetherness, education in schools, and economic transactions; the other-directed posture group contained 15 attitude sets

describing behaviors among characters, such as caring, selfishness, and obedience; the inner-directed posture group consisted of 13 attitude sets that guided behavior of characters, such as ambition, courage, and ignorance. Illustrations and words translated into English from randomly selected stories were analyzed for each country. The findings were reported in 3 ways. First, countries were listed in rank order according to the frequency of the presentation of attitudes. In the first 3 places were South Korea, India, and England. The United States ranked eighth. Second, the results were tabulated by the use of the 3 major posture groups. The third way showed the frequency of the presentation of the attitudes appearing the most frequently were caring and nurturing, playing, presence of food or drink, working, and cleanliness and orderliness. Differences were found among the primers in the various countries with some of them emphasizing certain traits more than others.

The sex role portrayal in children's books continues to be the most popular topic of all that have been content analyzed in recent years. All have reached similar conclusions. Gough (129) analyzed third grade basal readers from 2 companies and found that male main characters outnumber female characters, men are depicted in more occupations than women, boys and men are pictured in more illustrations than girls and women, and boys and men are depicted as active, while the female is shown as passive.

Oliver (285) examined 5 stories in one book selected at random to determine the frequency of female characters, their personality or character traits, their interests and activities, their professions or career options, their physical appearance, and their role in the family. Boys were featured in exciting and interesting stories; girls and women were shown in the home, performing household tasks. Men appeared in a variety of occupations, but women were shown in almost no occupation other than a housewife.

The purposes of the investigation by Britton (42) were to determine if sex stereotyping could be found in reading materials for grades 1-10, to ascertain if the majority of the stories showed one sex in a dominant role and to explore types and numbers of career roles depicted for males and females. Sixteen different reading series were analyzed, each by a different research assistant. Of the 4,144 stories analyzed, males were featured in the major role in 58 per cent of the stories, females in 14 per cent, and "other" in 28 per cent. In 86 per cent of the stories, the male was shown in a career role in contrast with 14 per cent of the stories depicting females in career roles. Of

the total career roles shown 81 per cent were assigned to male figures. In each series, boys were stereotyped as intelligent, achieving, persevering, and a number of other positive descriptive words. Girls were pictured as spectators, docile, and incompetent.

Saario, Jacklin, and Tittle (338) reported upon studies in which books, tests, and curriculums were analyzed to determine the extent to which sex role stereotyping occurred. The results of the content analysis of achievement tests reviewed in this article are reported elsewhere in this section. (See Tittle, 392). Jacklin and her associates analyzed every third story in selected books (first through third) from 4 elementary textbook series. When data from all companies were combined, there were more male characters than female ones; boys exhibited more examples of aggression, physical exertion, and problem solving than girls; adult males were depicted in higher proportions of constructive-productive behavior, physically exertive behavior, and problem solving behavior while adult females were shown in significantly higher proportions of examples of conformity behavior. The number of female characters declined from the primers through the third grade readers. Other instances of stereotyping were stated. Current curricular sex biases were also pointed out in the article by Saario *et al.*

Eight major achievement test batteries were analyzed by Tittle (392) to determine if they contain elements of sex bias. All nouns and pronouns and content stereotypes were recorded for each subtest. Among the findings were the following: The content bias in favor of males appeared not to be principally a function of language usage but of content selection. With the exception of one test, the batteries showed a higher frequency of usage of male nouns and pronouns than of female ones. An imbalance in the number of references to males and females was also found in the subtest analysis. In 2 subtests 84 male nouns and pronouns were counted for every one female noun or pronoun. Examples of sex role stereotyping included the portrayal of women as homemakers or pursuers of hobbies; boys were depicted in roles of responsibility and leadership. Tittle concluded that educational achievement tests did not differ from other educational materials so far as sex bias was concerned.

After analyzing the role of females in books for young children, Bernstein (26) made recommendations of books for purchase and use in a reading/literature program. She found that certain books offered both situations and characters with which girls could identify. Specific titles were listed for books in which girls fantasized; ordinary

situations became transformed into magical circumstances; different kinds of adventure were depicted; mothers and children were shown realistically but differently from their roles in the past, and everyday life was illuminated. Bernstein stated that many more books with girl protagonists are needed.

Lukenbill (236) analyzed the image presented of fathers in fiction recommended for children and adolescents. Characteristics isolated for this study included 1) descriptive data, such as occupations, socioeconomic classes, ethnic group memberships, major settings of novels, and reasons for the absence of the father and 2) father-family interpersonal relationships and behavior, including the socialization patterns of the fathers and other family members, characteristics of the fathers' social position within the family environment, processes of sanction and conformity at work on the fathers within the family structure, work specializations, role performances, and the like. Among a number of findings of the analysis are the following: The fathers in the novels analyzed were primarily white, middle class, and professionally or business-career oriented and lived with their families in small towns and rural or suburban settings. Fathers were consistently portrayed as heads of the family and the principal breadwinners. They maintained good relationships with their wives, were generally emotionally stable and respected by their children, and, for the most part, were socialized within family units. However, children did not overtly identify with their fathers. The fathers' authority in their households was exerted through sanctions and controls imposed on members of their households, but the fathers were seldom the recipients of any sanctions or controls exerted by family members. No predominantly democratic or autocratic trends in regard to the fathers was determined.

The *Interracial Books for Children* (174) revealed that all but 7 of the 80 picture-story books appearing in China since 1970 were published by 2 major publishing companies. Because of a movement in China to counteract elitism, writers and illustrators often leave their work unsigned. Of the books analyzed, 46 did not include the names of the authors and illustrators. The 80 books were classified under one of the following categories: stories written as object lessons; the "Bitter Years": struggle against the Japanese and the Civil War; stories of revolutionary movements in other countries; adaptations of works by a foreign author; primers or elementary texts; and folklore. Among the generalizations made concerning the differences between juvenile books published in China and those

published in the United States were the following: The Chinese books are more didactic than comparable ones in the United States and make no apology for their instructional-political posture; sometimes the publishers request readers to make suggestions. Chinese books present a realistic view of life; violence is restricted to overcoming political adversaries; women are portrayed in more active roles than in the books published in the United States; satisfaction comes from the sacrifice for the sake of the people. Since most of the Chinese books serve new readers of all ages, it is not easy to distinguish between children's and non-children's books.

Cole and Bowers (64) identified universities and departments of journalism which produced the largest number of mass media research articles in a 10-year period. To fulfill the purpose of the study the investigators analyzed 6 journals: *Journalism Quarterly, Public Opinion Quarterly, Journal of Broadcasting, Journal of Communication, Gazette*, and *Journalism Monographs*. All articles for which at least one author was identified as being a faculty member or student at 171 journalism schools in the United States were coded. Approximately 750 articles were coded. Cole and Bowers found an inverse relationship between professorial rank and productivity of articles; that is, assistant professors received more credit than did associate professors, and both received more credit than full professors. Graduate students also received more credit than professors. The University of Wisconsin led in numbers for all types of articles. Far behind Wisconsin were Minnesota and Iowa, ranking second and third. The most productive researchers were also named.

The 2 purposes of the study conducted by Ardoin (13) were to ascertain whether newspapers under joint printing agreements provided 2 distinct news voices in a community and whether recent court and congressional actions affected the content of the papers. Data were collected for 36 newspapers during 2 time periods, one at a time of no legal pressure and the second in a period of intense legal pressure. Two composite-week samples were drawn randomly from each of the 18 pairs of newspapers. Papers published from Monday through Friday in the 2 time periods were selected. Each item was measured and coded into one of 10 news categories. A high degree of similarity between the pairs of newspapers was found for each of the time periods. Some differences were found in a few comparisons, but no consistent overall trends were found. In addition, the analysis of local, state, and national content revealed a similar high coefficient of correlation between newspaper combinations in both years as did

the comparison of total news content. No effect from legal pressures was noted.

Hungerford and Lemert (169) analyzed news and editorials concerned with the environment for 20 general circulation Oregon daily newspapers. Their hypothesis that environmental news would be more likely to be about events or situations outside Oregon than any other news content was not sustained. Approximately 35 per cent of the environmental items were concerned with events outside Oregon compared with 42 per cent of the other news items. Strong support was found for the hypothesis that when environmental items were situated in Oregon, they would tend to concern locations outside the newspaper's own region. Of the environmental news items 63 per cent had locales within each newspaper's own region while 86 per cent of the other news items did. The investigators concluded that newspapers were much more likely to carry news about other parts of the state when it was environmental news. Furthermore, environmental news which was located within the newspaper's region tended to be outside the newspaper's circulation area. No significant differences were found among newspapers in regard to the proportion of news given to environmental issues, but there were large differences in the topics receiving the most emphasis.

A content analysis of political news of Turkey published in the *New York Times* during two 4-year periods revealed that the reporting changed in response to shifts in the relations between Turkey and the United States. The time periods selected by Sahin (340) were 1951-1954, a period of amicable relations between the 2 countries, and 1965-1968, a time in which anti-Americanism spread rapidly throughout Turkey. Pertinent to the study was the technique of content analysis which was used. The evaluative assertion analysis technique seeks to extract from a message the evaluations being made of important concepts and to place them on a 7-step evaluation scale on the basis of their direction and intensity. The foregoing technique was described in detail by Sahin.

Columns written by Heywood Broun before and after the Sacco-Vanzetti case, which he championed, were analyzed by Kelley (195) to ascertain the extent to which he was a liberal writer under different circumstances. Sixty-four columns taken from the *New York World*, the *New York Telegram*, and *The Nation* were content analyzed for theme (liberal, conservative, or no point of view) and checked against definitions of *liberal* which had been prepared by university faculty members. Kelley concluded that Broun was a

liberal writer, since 63.7 per cent of all the newspaper columns and 93.7 per cent of his writings in *The Nation* were of liberal bent. However, he did not become more liberal after the Sacco-Vanzetti reporting as was hypothesized.

The goal of the content analysis of black newspapers conducted by Barger (20) was to determine if variations occurring in images of political authority in America's black press was a matter of degree or type. The sample consisted of 6 community newspapers, 6 urban weekly publications, 3 organizational papers, and 2 national militant papers. The most commonly discussed political forms of authority in the black press were identified as the police, local courts, local government, state government, federal government, the Nixon administration, the United States Supreme Court, and the Congress. Images of the foregoing were coded as positive, negative, or neutral whenever they appeared in any item. An index measuring direction and relative frequency for each image was devised. Marked differences were found in the frequency in which different authority images were mentioned in the 4 types of papers. The community and organizational press were concerned with local government; but the larger, urban papers appeared to be indifferent to local and state authority. All of the newspapers projected negative images of the police and of the Nixon administration. Only a mildly negative image of the local courts, the Congress, and the federal government was depicted in the community, urban, and organizational press.

Baran (19) compared articles in 6 newspapers to determine the extent of reporting of the fatal shootings of white students at Kent State and those of black students at Southern University and Jackson State University. The length of all news articles appearing 7 days after the shootings was determined and coded. No clear pattern of coverage was discerned. Only 4 of the 12 comparisons resulted in significant differences, with 2 of the differences covering the black slayings. One factor which appeared to be related to the extent of the reporting was the proximity of the event to the newspaper.

Bagdikian (17) concluded from his analysis of afternoon daily newspapers that most have not included analyses and interpretations needed to supplement the live television coverage of events. The study showed that most papers which were studied approached a completely televised event as though the readers knew nothing about it. The focus of the study was the coverage of Watergate news in newspapers grouped into 4 categories according to size. Generally, the larger newspapers included more coverage and analysis in pro-

portion to the size than did the smaller ones. Although the quality of the news analyses varied, it seemed to parallel generally the quantity of such material presented in the papers. Bagdikian included in his report brief analyses of the news coverage and analysis found in several individual newspapers.

Bowers (40) analyzed political advertising in newspapers, classified the information in the advertisements according to the subject matter, and related the findings to the agenda-setting function of the media. The overall advertising for the candidates emphasized, in the following order: economic policies, social welfare, civil order, resources, labor, government, foreign policy, agriculture, and defense. Some differences emerged when the advertising for candidates of different parties was compared. The issues most often stressed for Republican candidates were civil order, economic policies, resources, and labor. The order of importance was somewhat different for Democratic candidates: economic policies, social welfare, civil order, resources, and labor. Differences in rank order were also noted for candidates for different offices. High coefficients of correlation were found between the most frequently mentioned issues in candidate advertising and the problems which had been reported by a Harris survey as being the most important problems to voters.

The editorials appearing in Ohio newspapers having circulations of more than 100,000 during a 4-week period in the spring of 1970 were measured for length and classified according to geographical emphasis, purpose, and subject by Windhauser (418). The geographical classifications included local, state (Ohio), national, and international. The 3 major categories for coding the purpose were informative (clarification of an event or issue without demanding action), argumentative (persuasion toward a particular point of view), and miscellaneous (amusement, amazement, entertainment). Twelve categories were used for coding the subject of each editorial, such as politics and government, crime, public health and welfare, and the like. The results of the analysis showed that Ohio metropolitan newspapers devoted more space to topics such as national events, politics, and defense than to the other categories. One-half of the newspapers devoted more space for the argumentative types of editorials than the informative ones. Little space was given for state affairs. In general, the study provided some evidence of similarities in the distribution of editorial space among metropolitan newspapers.

A content analysis of the news coverage appearing in an 11-year period in 3 weekly newsmagazines (*Time*, *Newsweek*, and

U.S. News and World Report) and the *Readers' Guide to Periodical Literature* was performed by Funkhouser (116). After counting for each year the number of articles for selected national issues, he noted that fewer articles appeared at the beginning of the period for the selected topics and that the coverage was uniform for none of the topics. He distinguished between newsworthy issues or those based upon discrete events and those which were not news events in themselves but resulted from selective reporting, over-reporting, summaries, and the like. Three event-based issues had definite build-ups and declines: the Vietnam War, student unrest, and urban riots. Crime coverage reached peak levels in 1965 and 1968. Non-event based issues, in descending order of coverage, included race relations, inflation, television and mass media, drugs, pollution and ecology, smoking and health, poverty, and women's rights. Funkhouser concluded that some of the major issues received news coverage which bore a tenuous relationship to the real events underlying the issues.

Majteles, Sellers, and Brown in Rubin (241) content analyzed the San Francisco *Chronicle*, Associated Press International wire copy originating in the San Francisco bureaus, and 9 mass circulation magazines to determine the extent of coverage of the different environmental problems. Articles were coded in the 5 problem areas of air quality, water quality, human population explosion and control, environmental additives, and management of energy-producing resources. The general finding was that there has been an environmental scientific information explosion both nationally and in the San Francisco Bay area. The *Chronicle* during a 6-year period offered its readers increased amounts of information in the 5 areas with the preponderance of news coming from government sources. There was no increase in the number of editorials concerned with science during this time. The quantity of environmental coverage through the wire services also increased dramatically. Considerable variation in the extent of scientific reporting among the different magazines which were analyzed was noted. Some, like *Better Homes & Gardens*, almost ignored the issues; others, like *The Reader's Digest* and *Playboy*, published increasing numbers of environmental articles. Of the 5 problems, population explosion and control and air and water quality received the most attention. Increased coverage of environmental topics in small newspapers and in the broadcast media were noted.

The principal concern of the analysis performed by Garon (119) was the reaction of the environmental reporter to pseudo-events, defined as happenings created expressly for the purpose of being reported. The newspaper coverage which resulted from a news conference in which details of Bay Area pollution were released was analyzed. Of the 28 dailies in the area, 17 carried at least one report. The educational television station did a more thorough job of reporting the news conference than did any of the daily newspapers. Garon concluded that the nature of the coverage was discouraging, but without the press conference there probably would have been no coverage at all. He also concluded that the mass media are too slow and unreliable. He based the latter point upon a telephone survey of members of the Sierra Club. Only 18 per cent depended upon the mass media for ecology information. The most important sources of information for those surveyed were conservation groups and clubs, knowledgeable individuals, and the academic community.

Rubin (330) focused on the problems related to access of information in the private business community directly affecting environmental quality as related to nuclear power plants. Of interest here was the analysis of actual press coverage of nuclear power plant sitings in northern California. Samples of daily newspapers of 3 plant sitings from 1958 to 1971 were content analyzed. Included were the local newspaper nearest the site (always rural) and the nearest metropolitan paper. A critical incident content analysis was used in which a list of critical incidents for each event were compiled. The analysis included newspaper coverage for both the week preceding and the week following the critical incident. News articles, editorials, columns, and advertisements were analyzed for certain words or phrases (such as *nuclear power plant*), length, location, dateline, and "adversary items" based on the standard arguments in the nuclear power debate. The quantity of news coverage was greater for the 2 challenged plant sitings than the unchallenged one and in local papers than in metropolitan ones. Coverage began relatively late for critical incidents.

Oates (281) analyzed the content of heart transplant stories in *Newsweek*, *Time*, and *U.S. News and World Report* to determine the extent of social and ethical content and any delayed diffusion pattern for the social and ethical content in these stories. The study began in December, 1967, when Dr. Christian Barnard performed the first heart transplant operation; and it continued for one year. The

technique used was a semantic content analysis described as word designation analysis; in this study the frequency with which social and ethical concepts are referred to was ascertained. To give order to the coding process, Oates used 3 categories; ethical indicators (words referring to ethical, philosophic, or value systems by which men have judged their actions over the years); social indicators (words referring to people in an aggregate or general sense); and depth or scope indicators (words going beyond a requirement to report objective facts of the news). Although the *U.S. News and World Report* had the highest frequency of social and ethical indicators, *Newsweek* and *Time*, each having approximately 3 times more total coverage than *U.S. News*, provided greater total amounts of social and ethical content. Little support was found for a diffusion pattern of ethical and social content developing behind the initial news coverage.

Weaver and Wilhoit (409) investigated through content analysis the relationship between the newsmagazine visibility of the United States senators and the following variables: seniority rankings in the 89th Congress, committee desirability rankings, population size for each state, ideology, security of the seats held, and inner club status. Samples of *Time*, *Newsweek*, and *U.S. News and World Report* were analyzed. The sample produced 1,091 references to senators, with the average Republican senator appearing 9.9 times and the average Democrat 11.9 times. Significant relationships were found for Republican but not for Democratic senators between their visibility and committee assignments and state size. No significant relationship for either Republicans or Democrats was found between the senators' newsmagazine visibility and seniority, ideology, security of seat, and inner club status.

Aspects of interaction between science and society found in Middle East newspapers were identified and analyzed by Haddad (139). The sources of the interaction statements were 8 magazines circulating in more than one Arab country and newspapers from each of the 7 Arab countries (Egypt, Iraq, Jordan, Lebanon, South Arabia, Sudan, and Syria). Of 908 scientifically-oriented newspaper articles, 17 per cent included one or more statements of interaction between aspects of science and society; 26 per cent of 348 magazine articles contained statements of interaction. More statements of interaction appeared in articles concerned with applied science than in those classified as pure science. The proportion of scientific articles with interaction statements varied with the theme of the article. The science-society interaction was presented largely as a positive

influence and principally in the areas of social and economic concerns. The countries studied did not differ significantly in their patterns of presentation of aspects of interplay between science and society.

III-3 Readability of printed sources

Using the readability formula developed by Flesch, Hoskins (166) determined the average readability levels of AP and UPI wire copy and compared the readability levels of the 2 news services. A random sample of stories from both services for one day was selected for each of 3 datelines: state, national, and international. The UPI stories tended to fall toward the "very difficult" end of the Reading Ease Scale with 83 per cent of its copy above the reading level of a high school graduate. Although AP copy cannot be described as easy to read, it received a higher Reading Ease score than UPI. The difference in readability of the stories in the 2 wire services was significant at the .05 level, with the difference being accounted for in the samples of national news. Hoskins concluded that both national news agencies could make significant improvements in the readability of their news stories.

The readability of each of the 47 Presidential Inaugural Addresses was estimated by Felton and Felton (104) as part of research exploring the nature of communication between the President and the people. By means of the Fry readability formula they found that the first one-third of the addresses had a readability grade level of 12.5 in contrast with that of 9.12 for the final third. Possible explanations were given for the downward trend from college to junior high school readability levels.

Taylor and Graham (383) developed a simplified form of the *Minnesota Multiphasic Personality Inventory* and tested its equivalence to the standard form. Each statement on the test was read by 2 clinical psychologists to determine if it could be rewritten in a more simplified form. When they agreed, the statements were made easier so that a person of limited ability or education could understand them. When it was agreed that statements could not be restated, they appeared on the revised test in their original form. The procedures used in simplifying the text included one or more of the following: underlining the word *not* and certain other negative words, substituting easier words, revising verb forms and voice, underlining key words in direct or implied comparisons, and reword-

ing abstractions and idioms into simpler, more concrete forms. Of the 550 statements, 82 per cent were changed in some way. When a readability index was calculated, the simplified form was found to be at grade 4 or below in comparison with the standard form at grade levels 5-6. The 2 forms were determined to be comparable after undergraduate college subjects responded to the 2 forms.

To determine the factors relating to readership McLaughlin (260) obtained data on the reading of subjects who represented the British population 16 years old and older. Data were derived from a continuing survey of newspaper and magazine readership conducted by the Institute of Practitioners in Advertising. Readership data in 48 categories were obtained for 47 different newspapers and magazines and were classified by sex, age, class, and educational level. Of the total variance in the readership, 97 per cent could be accounted, by 2 components: general interest and linguistic difficulty. McLaughlin hypothesized that long sentences were difficult because comprehension depends upon combining cortical patterns evoked by grammatically related elements, but in long sentences the pattern evoked by one element may have been lost before the next related element is read. Long words may be more difficult because they are generally the more precise words which require the reader longer to categorize semantically. However, the longer one must search for a word's meaning, the more likely that the preceding context will not be recalled adequately. McLaughlin measured sentence length by determining the percentage of sentences in a sample which were more than 20 words long and word length by the percentage of words which were of 3 or more syllables. He found that the foregoing measures provided approximately the same amount of information as more complicated calculations did. He then determined his SMOG Count which he described in detail. The SMOG Counts have been standardized on a British population only.

III-4 Readership

As a part of a broad study of the top leaders of American institutions, Weiss (411) reported upon their reading of newspapers, columnists, magazines, and professional magazines. The exposure to mass media was examined for its possible effect on the opinion-forming and decision-making activities of influential Americans. Leaders from institutional sectors having a broad impact on society, such as industrial corporations, labor unions, the Congress, voluntary

associations, mass media, and the like; and representatives of the wealthy class were interviewed. The resulting data were organized within the content of general background characteristics. Among the many findings of the study are the following: *The New York Times* was the reading matter common to all groups except for political party leaders. The latter group tended to read mostly local newspapers and *The Wall Street Journal*, which also has elite readership. *The Washington Post* is preeminent among federal officials and the congress and tends to be read by labor, voluntary association, and media leaders. Those who live in Washington, D.C., read *The Washington Post* (92 per cent), *The New York Times* (74 per cent), and the *Wall Street Journal* (52 per cent). New York residents were somewhat more parochial; 99 per cent reported reading *The Times*; 51 per cent, *The Wall Street Journal*; and 27 per cent, *The Washington Post*. The elite respondents living outside these 2 centers favor *The Wall Street Journal* (69 per cent) and *The New York Times* (43 per cent). James Reston of *The Times* was the columnist most often read. Eight magazines were read, either regularly or occasionally, by more than 60 per cent of the subjects; they were, in order of frequency, *Newsweek*, *Time*, *U.S. News and World Report*, *Life*, *Business Week*, *Fortune*, *The New York Times Magazine*, and *The New Yorker*. More than 200 journals were listed when the respondents were asked to name the professional publications they read. Weiss also compared the reading matter of political and economic leaders with that of intellectuals reported in another study. To gain information concerning the significance that American leaders attribute to the media, each subject was asked which single national issue he had been most actively concerned with during recent years and the sources of information which had been most valuable to him concerning that issue. Eighty-five per cent discussed issues they worked on as part of their jobs. Various sources of information were cited as being valuable. One conclusion resulted from the extensive findings in this study: The media are widely read and highly regarded among America's leaders.

The findings in the study by Rarick (311) suggested that subscribers could be distinguished from nonsubscribers to daily newspapers more productively if characteristics of the household rather than the attributes of one person are analyzed. Three indices were constructed. The Chief Breadwinner Index included such characteristics as the occupation, age, and formal education of the chief breadwinner or person who contributed the most income to the

maintenance of the household. Items concerning the activities of the respondent were included in the Respondent Activity Index: attendance at public meetings, membership in local organizations, various kinds of activities (such as reading, hunting, working on a hobby). The third index constructed was the Household Index which concerned attributes of the household rather than attributes of one respondent. Included in this were length of residence at the present address, income, and home ownership. The latter index proved to be much better than the other 2 indices in distinguishing subscribers from nonsubscribers. A household that possessed all of the specified characteristics in the Household Index was 4½ times as likely to be a newspaper subscriber as the one that possessed none of the characteristics.

The adults who were interviewed in the study by Sharon (352) in regard to the printed materials they had read the previous day formed 4 subsamples: blacks, whites, low income blacks, and low income whites. The proportion of white readers was found to be greater than the proportion of black readers for every kind of reading material; the largest percentage differences were in newspaper reading. When the reading habits of low income blacks were compared with those of low income whites, there were significantly more white than black readers in several categories; the largest difference again was in newspaper reading. Significant reading behavior differences between black and white newspaper readers were the following: blacks read a mean of 4.7 different sections of a newspaper while whites read an average of 6.2 parts; most newspaper sections were read by proportionately more whites than blacks with the largest percentage differences, in declining order, in editorials, women's and society pages, and regular advertisements. Only the sports section was read by blacks significantly more than whites. A proportion of low income blacks significantly lower than low income whites read the main news, women's and society pages, editorials, and financial and business section. The findings of the study suggest that race is a factor in newspaper readership.

Validation tests of a title rating technique developed in the United States were conducted by Stevenson (374) to determine whether the technique could be used to predict the actual readership of specific magazine articles and the ranking of a series of titles from highest readership to lowest in materials from the Philippines, Venezuela, and Argentina. The subjects in the 3 studies reported here were shown a drawing of an ordinary thermometer with values

ranging from zero to 100 and were asked to indicate their interest in reading a magazine article described by title and a brief summary by assigning the title a reading interest score on the scale. Only the extreme values on the scale were defined. In all 3 studies the reading interest scores were obtained in a mail survey conducted before the publication of the test issue; actual readership figures were obtained from personal interviews with similar samples of magazine recipients several weeks after publication. In spite of a small readership basis in 2 of the studies, the results demonstrated the ability of the title rating method to predict actual readership and to rank order articles by frequency of readership.

III-5 Professional reading of teachers

To assess informally teacher interest in reading, Mueller (275) developed a questionnaire concerning leisure time activities and administered it to members of 2 reading methods courses, one at the graduate level and the other at the undergraduate level. The subjects were given a number of opportunities to select reading from among several choices or to respond to open ended questions to identify the value of reading. More than half of both groups preferred reading a popular book to seeing the corresponding hit movie. Only 23.5 per cent of undergraduates and 50 per cent of graduates preferred to spend an evening reading to watching television, with fewer than half of either group selecting reading the newspaper over watching the news on television or listening to it on the radio. Undergraduates reported seeing more movies and graduates reading more books in the last 3 months period. When asked how they spent their leisure time, approximately 40 per cent of both groups rated reading as fourth or lower in a list of 7 articles. The responses appeared to indicate that the subjects in this study valued reading only mildly in their professional and personal lives.

III-6 Reading interests, preferences, and habits

The results of an extensive survey of the reading habits of adults were reported by Sharon (353). The purpose of the survey was to determine what was being read by adults, the length of time devoted to reading, and the place of reading in the daily lives of adults. The interviewers recorded such characteristics of the subjects and their environments as race, sex, type of dwelling, and neighborhood and asked the respondents what they had done hour by hour on the previous day as well as certain kinds of demographic information.

The interviewers also asked questions designed to bring to mind any reading which had been done in connection with these activities. They recorded all reading mentioned, the time used in reading, the importance of the reading, and the difficulty the subjects had in reading. Sharon found that many persons spend a substantial portion of the waking hours in reading, frequently during daily activities —such as working; shopping; attending school, church, or theater; and traveling or commuting as well as during recreational or free time activities. The major part of the reading time was spent on newspapers, magazines, books, and job-related materials. The average American adult reader in this study spent one hour and 46 minutes in reading on a typical day; much variability in reading time was found, with approximately 6 per cent reading for less than 5 minutes and about 6 per cent reading for 8 hours or more per day. Many kinds of reading on which a relatively short time is spent, such as reading street or traffic signs, are an integral part of other activities of the individual. People of high socioeconomic status tend to read more of all kinds of printed materials than do those with low socioeconomic status. Fewer than one per cent reported difficulty with any type of material. A detailed description of materials read within 13 categories (such as newspapers, books, magazines, mail, at work) was included in the report. The nonreader group, comprised of adults who could not read newspaper headlines in the English language, were described as having very low socioeconomic status but desiring to read.

Mills (273) found, in 2 experiments, a strong relationship between the desirability of products and the interest of college women in reading advertisements about the products. In the first study the subjects ranked 10 products according to desirability, made a choice between 2 of the products, and rated their interest in reading advertisements for each of the 10 products. The products between which subjects could choose and the instructions concerning the difficulty in changing the choice were varied for the different subjects. The procedures for the second experiment were the same as for the first experiment except that all subjects were given a choice between the products ranked second and third in desirability with the instructions concerning the difficulty in changing the choice being varied among the subjects.

Individual and social variables were analyzed by Chaffee and McLeod (52) to determine their power in predicting one kind of communication behavior, political information-seeking. Questions

were asked of subjects in regard to their voting plans for 2 political races, their perceptions of the campaign, and their interpersonal discussion of it. The subjects were given a list of 3 titles of pamphlets, any or all being available for those who requested them. One was from the League of Women Voters, which proved to be the most popular pamphlet, and the other 2 were partisan literature. Of the latter 2, there was a tendency for the subjects to prefer the one concerning his own candidate. Those who requested political information were those who had more political knowledge and political interest, who frequently discussed the campaign, or who intended to discuss the campaign.

Haskins (152) tested the hypothesis that news about violence supplemented with information promising greater understanding and/or improvement in the situation will have higher reader interest than a straight-news treatment of the same topic. Two current news headlines and an alternative constructive treatment of each topic in headline form were tested for reader interest in a quasi-experiment by means of questionnaires completed by 143 household heads in an upstate New York community. On both topics the constructive treatment was found to be significantly more interesting than the straight-news presentations. The appeal of the constructive approach for the violence-and-crime topic was verified in a second study in Tennessee among 272 heads of households.

III-7 History of reading instruction

Various aspects of the teaching of reading in England until 1870 were recorded by Horner (164). Different invasions brought about many changes in the English language; these changes, in turn, influenced writing and education in England. The hornbook, introduced about 1450, was followed by different primers, including *The Royal Primer*, and *Mrs. Trimmer's Charity School Spelling Book*. The contents of the foregoing books were described by Horner. At the end of the eighteenth century and the beginning of the nineteenth, books prepared for children were influenced by Rousseau; at the same time child-centered approaches to the teaching of the curriculum were begun. Bell and Lancaster, who exerted a powerful influence on elementary education in the early nineteenth century, developed a monitorial system; standards were laid down in the 3 R's, and children were placed into small groups, each one in charge of a monitor. At this time little attention was given to comprehension. The Revised Code of 1861 presented required standards in reading

prepared by the state. Horner concluded that although there was an increase in literacy following the 1870 Education Act, it was in the next century that radical changes were made in reading methods and teaching materials.

III-8 Social and cultural influences

In an earlier study, Hansen (143) found that the home literary environment was the only factor which he investigated that showed a significant relationship to the reading attitudes of the fourth grade subjects. The purpose of the present study was to present a breakdown of the factors and to show the relationship of each factor to the total home literary environment. Hansen concluded that the major factor was the involvement of the parent with the reading activities of the child, such as working with homework; encouraging, helping to select, and discussing his reading; reading to him; assisting in the use of the dictionary and encyclopedia; and setting reading goals. Because of the low ranking of parents as model readers, it appeared that it is not necessary for parents to be avid readers for them to rear children who are.

In the study by Dentler and Warshauer (77) the major hypothesis was sustained: Differences in high school dropout rates and of adult functional illiteracy in 131 large cities in the United States are functions of differences in levels of poverty, occupational mix, economic mobility, and social mobility. The way in which cities expend their public funds for health, welfare, and educational service varied as a function of each city's level of educational attainment. Withdrawal of white high school students was related to low levels of white collar workers and population increase, and high levels of low income families, adult illiteracy, overcrowded housing units, per cent of young people under 5, and nonwhite dropouts. Non-white high school withdrawal was correlated with the following factors: low incidence of high income families, non-workers and non-white non-Negroes (such as orientals) in the population, and high incidence of white dropouts, non-white operatives, and adult illiterates. Both white and non-white adult illiteracy were found to be related to low immigration and high levels of low income and occupational achievement. In the both analyses of dropout rates and adult illiteracy such factors as population density, unemployment, and median rent were not significant.

III-9 Literacy

The general goal of an extensive study by Sticht, Caylor, Kern, and Fox (375) was to ascertain functional literacy levels for selected army jobs into which men of lower aptitudes are often assigned. The first part of the study was concerned with the manner in which reading and listening abilities were influential on a man's information seeking and processing on the job. Men in 3 of the foregoing army jobs were interviewed regarding their use of listening and reading sources in obtaining information related to their work. The readability levels of the job-related reading materials for 3 army jobs (cook, general vehicle repairman, and supply clerk) were determined. Relationships between the subject's levels of reading achievement, as determined by standardized reading tests, and his performance on job-related reading tests were established. The latter tests were constructed of materials and questions from the 3 jobs. Finally, relationships between reading, listening, and arithmetic skills and proficiency on job knowledge tests, job sample tests, and supervisor ratings were established. The difficulty levels of the materials intended for the supply and repairman job positions exceeded the average achievement levels of the high aptitude job incumbents by 5 or 6 grade levels. The reading materials used by the cooks were in harmony with their measured reading levels. Men with lower reading achievement levels were less likely to read the professional materials than were those of higher achievement levels. Reading materials for the supply personnel were more difficult than those for repairmen and theirs in turn were more difficult than those for the cooks. Men in the supply and repair work who read at lower levels tended to rely as much, if not more, on asking others for information as on reading. Since the reading materials were easier for the cooks, they did not prefer listening to reading. The coefficient of correlation between the performance on standardized reading tests and the job-related reading task tests for each group was approximately .76. Positive, significant relationships were found between the listening and reading variables and the 2 tests of job proficiency.

III-10 Library development and use

Johnstone (186) ascertained the differences in Australia in attitudes to public libraries and in patterns of library usage across different ages of users. The most common reason for using the public

library was as a source of general reading; the foregoing was reported by all age groups except for the youngest (17 years and younger) for whom the most common reason was as a substitute for the library at school. The frequency of library visits by those in the 66+ age group was once in every 11 days; they went to the library far more frequently than did their younger counterparts who went once every 2 weeks. More than 77 per cent of the subjects stated that they borrowed books on most visits. The greatest amount of interest in books of an educational and vocational nature was exhibited by those under 30. Interest in recreational books increased with the age of the library user in Australia.

The 3 major purposes of the study by Rogers (322) were to investigate the overall acquisition rates of Canadian literature by libraries in the United States, to determine the selection policies and acquisition procedures of these books, and to identify some of the major collections of Canadian literature in the United States. The results of the study done in 1971 were compared to those of a similar one completed in 1961. The methods used in both studies included using of questionnaires sent to selected large libraries, checking of Canadian literature titles for selected years against the *National Union Catalog* and *Canadiana*, and consulting published literature which described major collections. Rogers concluded that modest progress occurred in the decade between 1961 and 1971 in the acquisition of Canadian literature in libraries in the United States. The libraries established in the foregoing respect added to their holdings, though sometimes conservatively; a number of the newer collections made substantial gains. The Library of Congress continued to surpass greatly all other libraries in the acquisition of new Canadian titles. In both 1961 and 1971 approximately 20 per cent made a special effort to collect Canadian literature; about 75 per cent did not acquire Canadian literature as such but purchased it in response to favorable American reviews or patron demands. The policies in regard to the acquisition of Canadian literature of a number of large libraries were detailed by Rogers.

Kronus (212) analyzed a large body of data to determine the relationship between the rate of library use among adults and a wide variety of factors. The analysis was a secondary one of data collected in an omnibus survey conducted by the Survey Research Laboratory at the University of Illinois. The findings revealed that educational, family life cycle, and environmental factors (proximity of the library, quality of the library), in the order of importance, affected adult

library use. No evidence was found of any influence of age, sex, race, or economic factors (personal income, the level of the head of the household's occupation) on library use. Kronus constructed a tentative model of causal influences of library use. He suggested that since the bulk of the variance in the adult library use is still unexplained, new avenues of research are needed.

In an extensive report Lyman (239) presented a synthesis of the current research on reading of the adult new literate, the sociological context in which such reading took place, data from a national survey of adult new readers, and criteria for library analysis of needed materials. The foregoing are linked to the national adult reading instruction programs. The sources of data collection were selected research findings in areas of social urban problems, poverty, adult reading, literacy, and library service to the disadvantaged; recorded experiences of librarians; published and unpublished documents and reports of national adult programs; statistics of the U.S. Bureau of Census and federal adult basic education and job training programs; personal interviews based on a questionnaire in a sample survey of adult new readers; responses to mail questionnaires eliciting information from librarians, teachers, and administrators in relevant adult education programs; examination of reading materials; consultations about reading materials; field visit surveys of cooperating public libraries. The principal objectives of the study were to identify and evaluate reading materials intended for and used by the adult new reader after the first stage of literacy to an eighth grade reading level; to identify kinds of reading materials appropriate for a variety of adult new readers; to develop criteria for the creation and evaluation of materials for the adult new readers; and to identify the implications relating to the materials retail market and the potential demand for these materials. The findings of the different parts of the study are far too numerous to report here. Of special interest are the criteria which were developed for the evaluation and creation of reading materials for the adult new reader.

III-11 History of newspapers and magazines

Ames (10) delineated the history of the *National Intelligencer*, considered to be the aristocrat of Washington, D.C., journalism during the first half of the nineteenth century, when Washington was the journalistic capital of the United States. At this time political newspapers dominated the publishing field and received governmental funds so that they could remain in business.

Although the *Intelligencer* was founded by Samuel Harrison Smith, Joseph Gales, Jr. and William Winston Seaton edited and published it during most of its existence. In the early days Smith contended that the newspaper was nonpartisan; he highly regarded individual rights and attacked ideas of his political opponents and not the individuals themselves. He contributed to the journalism of his day by the format and policies the newspaper followed and his reputation of fairness, accuracy, and honesty. In August, 1810, Gales became the publisher and owned the *Intelligencer* for the next 50 years; Seaton worked with him for 48 years. During the War of 1812 they played a role as agents of the government, not as commentators or critics; both were too independent to be satisfied with this position. At this time congressional reporting filled the paper; the view expressed was considered to be that of the administration in power. It was the official organ of the government; published proclamations, advertisements, and the like which were paid for by the federal government; and published treaties and proclamations which were later copied in other papers. Until 1800 it was generally free of competition. In 1825 with the election of John Quincy Adams, the *Intelligencer* was replaced by the *National Journal* as the semiofficial representative for the President of the United States. By the time that Jackson took over the office in 1829, the editors had lost the source of their income, the congressional printing contracts, but had gained independence, a position few political newspapers had experienced. Over the years Gales and Seaton debated issues, supported candidates of their choice, and became influential because of their points of view. Later new papers appeared; the circulation and influence of the *Intelligencer* declined; and the paper died in 1865. The long life of the newspaper appeared to be due to high journalistic standards and its strong intellectual characteristics as well as the editors' knowledge of the ways in which federal patronage worked.

In 1873 James E. Scripps founded the *Evening News*, which he later renamed the *Detroit News*. Scripps strongly believed in a locally owned and operated newspaper, one that was so inexpensive that all of the working class could afford it; and he believed in the importance of newspapers promoting reforms. Lutz (237) traced the development and influence of the *Detroit News* from its beginning through various stages to the present. The relationships of the press with public reform issues such as Detroit's street railway, with Henry Ford and the Ford industry, with General Motors, with labor, and with prohibition were all discussed. In fact, the history of the

Detroit News harmonizes with the history of Detroit. The *News* involved itself throughout its history with public affairs issues, especially those concerned with Detroit, such as urging for lower utility rates, better roads and lighting, and home rule. It also exposed corruption and dishonest politicians. It sponsored the first commercial radio station in 1920, honored Detroit sports heroes, and campaigned for city improvements such as the riverfront development. The *Detroit News* became the largest evening newspaper circulated in the United States and is now a part of a broad corporation (the Evening News Association).

The history, status, and legal aspects of the college press were discussed by Duscha and Fischer (91). In the first half of the book Duscha discussed the legal aspects. The first campus weekly newspaper was established at Dartmouth College in 1839, while the first daily began at Yale University in 1873. By the late nineteenth century most colleges and universities had at least weekly newspapers. Today there are more than 1,200 newspapers serving college and university campuses; many are daily newspapers (Mondays through Fridays). Nearly all of these newspapers were under some type of administrative control in the 1960's; most continue to be today, although there is a marked trend towards independence. Controversies concerned with the campus press are not new, but the issues are different. Case studies of university newspapers which had become entangled with controversial issues were given for the University of California, Stanford University, the University of Oregon, the University of Florida, Columbia University, and the University of Maryland. The writers concluded that an independent student newspaper serves both students and administration best as it clearly separates the views of the student publication from those of the administration. Suggestions for operating an independent press were made. In the last part of the book, Fischer discussed the relationship of the law to the campus press. Freedom in publication may vary from campus to campus according to its public or private nature. No substantial legal distinction between the status of the campus press and that of the press at large was found in the literature. Legal problems related to the student press, the responsibilities of the campus press, and the consequences of the selection of the student newspaper staff, were discussed with many specific instances being cited. In his conclusion, Fischer points out that the problem of expression is not an absolute unlimited right. The university is not ultimately responsible for everything that appears in the student newspaper, nor is the student writer

completely free to express himself. A number of important legal cases were summarized in the appendix.

The historical development of the *Moscow News*, the first Soviet newspaper published in English, was traced by O'Keefe (284). Founded by an American communist sympathizer, Anna Louise Strong, the paper first appeared in October, 1930, and was intended for English-speaking specialists working in the Soviet Union, tourists, Russian students of English, and interested people living in other countries. Although the first issue was relatively free of propaganda, the following ones were not. In 1932 the newspaper was merged with *The Worker's News* and became *The Moscow Daily News* with Michael Borodin as editor. *The Moscow News* became a weekly publication. The *Daily News* bore characteristics of other Soviet publications, such as Soviet stereotypes of communism and capitalism and official party jargon. Foreign news almost disappeared at this time. Experimentation in the use of graphs and pictures, especially on the front page, was evident. In 1938, after a relatively short life, the *Moscow Daily News* ceased operation, but the subscribers continued receiving the weekly *Moscow News*. The paper was published twice a week during World War II with all available space being devoted to the reporting of the war and exhorting Russians to victory. In 1946 the paper received criticism from a governmental agency that it was not depicting Soviet life in all aspects. Few changes followed, however. In 1946 the paper was shut down and Miss Strong was expelled from the Soviet Union; Borodin and his associates were sent to Siberian labor camps. The *Moscow News* reopened in 1956 under the editorship of Constantin Kudrov, after having been closed since 1949. The circulation continued to rise and reached 400,000 in 1970. French and Spanish editions were begun in 1962 and an Arabic edition in 1969. Approximately 90 per cent of the total circulation of the English edition is now distributed within the USSR. The various editions of the *News* are regionalized to some extent.

The relationship of cities and urbanization to magazines was studied by Burd (47) who searched for references to magazines in an urban content in classic magazine studies and surveyed and evaluated popular literature. He also conducted a survey to determine the extent of participation by selected magazine personnel in urban problem solving. Based upon a large number of findings of the study, Burd concluded that there were historical parallels and similarities between urban magazine journalism of the reform era at

the beginning of the century and the magazines of the last decade and the present time. At both times urban revivals and concern for the past produced specialized urban magazines. Such writers from the earlier period as Jane Addams, Robert Park, Walt Whitman, and George Creel were compared with Jane Jacobs, Norton Long, Norman Mailer, Jimmy Breslin, and Tom Wolfe in the later period. Burd reported details from a large number of magazines in regard to urbanization and magazine reporting.

III-12 Newspaper publication

Questionnaires were sent to managing editors of newspapers throughout the United States by Schiltz, Sigelman, and Neal (348) to investigate various aspects of coverage of foreign policy news. More than half stated that their paper depended upon 3 or 4 sources for foreign policy news with the principal secondary source being the Associated Press. The editors considered local U.S. senators and representatives to be the most cooperative primary sources, followed by other senators and representatives. Of 7 different types of news they were asked to rank, they placed foreign policy news fifth. However, they believed that the newspaper was the most influential medium with regard to its importance as a source of foreign and defense news and with regard to its importance in influencing foreign and defense policy makers.

Newspaper reports of politically violent events during a 150 year period were examined by Levy (227) to determine the relationship of the events covered to the nature of the event and to the distance of the event from the newspaper source. The *Washington National Intelligencer* was the source for the years from 1819 to 1850; the *New York Times* served as the source for the period from 1851 to 1968. Each violent event was coded for geographical location, reason for the attack, number in the attack, and injuries and deaths. No direct relationship was found between the distance of the center of population from the source and the distance of the source. Before 1895, the distance of events from the source paralleled closely the westward movement of the population; after 1895 the events were reported much closer to the source than the average distance of the population. Labor and racial violence accounted for more than two-thirds of the incidents reported. After 1850, reported labor events were closer to the source than were racial incidents in 11 of 12 ten-year periods. Consequently, Levy concluded that the nature of

violent events rather than the distance from the source appeared to be the main factor in the coverage of the 2 newspapers examined.

The purpose of the investigation by Meyer (265) was to ascertain if an elitist bias or some other specific pattern of bias could be identified as a principal cause for low believability of newspaper reporting. In interviews, the respondents evaluated the treatment of newspaper coverage of specific groups of people by selecting one of 3 descriptions: "too favorably," "about right," and "not favorably enough." From the results of factor analysis of the variables, Meyer found that the respondents tended to maintain consistent attitudes toward newspaper coverage of the counterculture (Factor 1), the common man or the plain-folks (Factor 2), and those who exercise authority (Factor 3). Credibility of newspaper stories was determined by comparing responses to questions with those of other populations at other times, analyzing answers to questions adapted from the Michigan Center for Political Studies, and evaluating ratings on a semantic differential scale. The relationship between low credibility and perceived bias toward specific groups was next determined. Low credibility was not found to be caused by perceived too-favorable treatments of groups; low belief in newspapers was significantly related with high scores (not favorable enough) on the plain folks factor; the most believing readers were those who were neither high nor low in their desire for more favorable treatment of authorities. Meyer concluded that the press was out of touch with the concerns of ordinary people and that the foregoing loss was the cause of disbelief in the fairness of the press.

The problems involved in scientific and environmental reporting were delineated by Lowrey (235) who reviewed studies of different branches of science. He pointed out such difficulties as the extent of scientific knowledge needed for the interpretation of events, the elusiveness of what constitutes news in science reporting, the complexity of many scientific stories, and the difficulty in obtaining accurate information. Communicating environmental news is as difficult as reporting scientific news. Lowrey presented several brief case studies to show that the complexities of the events defeated the efforts of the press to present issues before they were voted upon by the public.

Criteria for acceptance of environmental advertisements were established by Sandman (344). Case studies of newspaper, magazine, and radio rejections of advertisements were included. As a result of his analysis, Sandman made several recommendations. It is the right of every publisher and broadcaster to accept or reject ads. In

deciding which should be rejected, the media should make use of the widest possible range of information sources. Untruthful advertisements should be rejected. Included in this category are ads which are misleading, fraudulently staged, and factually inaccurate. Advertisements which suggest corporate environmental responsibility are misleading if the responsibility suggested is greater than the responsibility exercised. Ads which are irrelevant are misleading since they steer the public in the wrong environmental direction. The most difficult ads to deal with are those that have no environmental content although they are concerned with products or services with significant environmental implications. It is the responsibility of the media and not the federal government for forcing advertisers to deal accurately with environmental problems.

III-13 Paperback books

The status of the paperback book in today's schools was surveyed by Gillespie and Spirt (122). They reported upon a 1967 and a 1970 study; however, since they did not find significant differences between the 2 years in selected aspects, they relied upon the 1967 data in other parts of the study. Therefore, there are no comparative data for all sections of the investigation. The questionnaires sent to elementary and high school administrators and librarians in public and private schools included questions centered around 6 categories: general information, use, paperback bookstores, purchase of paperbacks, expenditures, and comments. Findings related to the use of paperbacks are included here. In general, paperbacks have been well accepted at all levels, but any opposition that remains is strongest with groups at the elementary school level, especially with librarians. Only 2 per cent of the high schools surveyed do not use paperbacks. High schools use paperbacks as textbooks twice as much as elementary schools do; suburban schools use them more often than urban or rural schools do. The most dramatic increase in the use of paperbacks between 1967 and 1970 occurred in school libraries. At the high school level 60 per cent stated that the use had increased; at the elementary level, 46 per cent. The 1970 survey findings also revealed increased numbers of paperbacks in classroom libraries. Included in the report were descriptions of paperback programs in schools, reviews of studies which were concerned with paperback books, a review of the history of paperback publication, selection policies, administration of paperback collections, sale of paperbacks in schools, and general recommendations.

III-14 Juvenile book publication

The emphasis of the detailed history of children's books surveyed by Thwaite (390) is upon those written and published in England; however, in this revised edition she has included a section concerned with children's books from several other countries: the United States, Canada, Australia, Italy, France, Spain, Germany, Switzerland, the Netherlands, and Scandinavia. The first part of the book contains a history of printing as related to the development of children's books and a history of children's books published before the nineteenth century. Books for youth in medieval times were rare and strictly utilitarian and instructional, intended for future grammarians, novitiates of the church, or courtiers. At the beginning of the fifteenth century, upper class children read books of little treatises (mostly in rhyme) and of manners and courtesy with ABC's, primers, and fables soon following. Other early types discussed included romance, traditional literature, balladry, and *Robin Hood.* Different versions of the *Bible* and other religious books appeared especially in the sixteenth and seventeenth centuries. Thwaite discussed for the eighteenth century the development of chapbooks, the place of John Newbery in the publishing trade for children, the beginning of secular literature, Rousseau, and the moral school. The nineteenth century, considered to be a golden era in children's literature, saw an expansion in juvenile publishing largely because of the development of schools and libraries. During the middle of the century there was a branching out on a wide scale into different types of books intended for different kinds of readers. A detailed history is given for each type of children's book appearing in the nineteenth century. Included are the fairy lore and fantasy, nonsense as found in verse and drama, stories of home and school, tales of adventure, recreation of the past, animal stories, picture books and books for young children, books of knowledge, and periodicals.

III-15 Attitude and opinion change

Norris (279) conducted 2 studies to determine whether varying an attitude scale against which an attitudinal stimulus is judged would lead to a change in the subjects' own attitudes. In one study the subjects read a series of messages which became gradually more persuasive, step-by-step, each containing arguments for a slightly more discrepant position until an extreme position on a topic was reached. The second procedure used was to cause a discrepant

position to be judged in relationship to an even more discrepant position. In both studies the subjects read messages in the form of news stories which reported discussions by the clerks and management in a large department store about a basic salary scale. The dependent variable was the statement of what average hourly wage the subjects thought sales clerks should receive. The results showed changed attitudes of the subjects in both studies. However, the findings indicated that gradual attempts to increase assimilation are no more effective than a highly discrepant message by itself. The second study provided more evidence that the salary which subjects advocated was largely determined by the end points of the scale given them.

In the second part of an investigation of the impact of adventure fiction on readers, Harl[illegible]s (149) selected the "nice guy" type of novel as the reading material for his subjects. He used the same research techniques as in the first part of the study in which he studied the effect of an adventure-mystery novel on reader attitudes. Data from both novel types revealed that attitude change does not come from reading a piece of fiction but is the result of the reader's involvement with story content. In general, positive involvement with story content will be accompanied by attitude changes suggested by the content; negative involvement will be accompanied by attitude change away from the position. Involvement with the fiction content as well as with the resulting attitude changes is highly selective in many cases. For example, readers may be attracted to one part of a character's attitudes but may reject another part.

From an examination of 18 educational journal articles, Donlan (81) obtained a list of 61 titles of books. Of these titles 10 appeared more often than the rest: *Catcher in the Rye*, *Brave New World*, *To Kill a Mockingbird*, *The Grapes of Wrath*, *The Ox-Bow Incident*, *Lord of the Flies*, *Catch 22*, *A Bell for Adano*, and *A Farewell to Arms*. A small sample of California high school English teachers were surveyed to determine their experiences with the aforementioned controversial books. Although most of these novels are taught, more teachers did not use the books as instructional materials than those who did; the most commonly stated reason for not teaching the books was that they were not in the curriculum for the grade level taught. These teachers reported that parents headed the list of objectors with the majority of their objections classified under language or events. Donlan presented 14 words from one of the books to 25 parents who reacted to them in a survey form. They

reacted strongly to what they viewed as obscene or blasphemous language; they tended to object more to their children saying the words than reading them; they tended to object more to their children's reading the words in a school setting than out of a school setting. The fathers were more conservative in regard to language than were the mothers.

The primary purpose of the study by Curto and Sistrunk (68) was to explore the effects of race on opinion change in terms of experimenters, communicators, and subjects. After the subjects completed a questionnaire concerned with their opinions about a cancer cure, conservation, and the railroad industry, they read selections attributed to a professional news service which included opinions regarding the foregoing topics. The picture of the alleged author (black or white) was included with the communication. The subjects responded to the same questionnaire after they read the selections. The overall results were nonsignificant.

The major purpose of the study by Yawkey (424) was to determine if reading by the teacher and teacher-directed discussion of 6 social studies multi-ethnic texts could change urban and rural children's attitudes in a direction favorable to the black American. An attitude questionnaire was administered at the beginning and conclusion of the study to the subjects who were between the ages of 3 and 8 and who represented the middle socio-economic class. The multi-ethnic materials concentrated upon black feelings, situations, ideas, and the contributions black Americans have made to the development of the United States. The control groups received no specific treatment of any kind. Yawkey concluded that the reading and discussion of selected multi-ethnic social studies materials brought about a significant attitude change in a direction favorable to the American black in both rural and urban schools.

Thomson (388) attempted to determine if journalists are objective and immune to the influences of events which they report and if they experienced psychological stress when their reporting forced counter-attitudinal information upon them. He also attempted to learn how they resolved any stress they experienced. Both a belief index and a stress scale were developed and administered 4 different times during the study. All experimental conditions were conducted simultaneously within each participating journalism class. Two kinds of attack concerning the payment of higher tuition fees were presented to subjects: one attacked the belief and the second attacked the individual who held to the belief (*ad hominem* attack).

The subjects were then assigned to prepare an interpretive news article containing arguments for or against higher student fees for the next year at public universities. The subjects who read the issue attack revealed a somewhat more positive opinion toward raising the fees than did those reading the *ad hominem* attack, but the difference was not significant. Subjects reading the issue attack became significantly more favorable toward higher fees while those in the *ad hominem* group showed a nonsignificant negative shift. Both attacks were equally tension-arousing. Tension decreased the most in all conditions after the writing assignment had been carried out regardless of the attack read or position taken in the writing.

III-16 Effects of reading

McClenghan (253) investigated the influence of newspaper editorial endorsements on voting behavior in local elections held in 7 Texas cities between 1960 and 1971. The amount of space provided by 4 major Texas newspapers and the number of editorial endorsements in 10 newspapers located in 7 cities provided the data of the study. The results showed that approximately 9 out of 10 candidates endorsed by the Texas newspapers which were analyzed won their elections. The endorsed candidates received more newspaper space than their opponents. In addition, the endorsed candidates had a much wider margin in advertising space and more space in the letters-to-the-editor section; 61 per cent of the letters published supported the endorsed candidates. Picture coverage favored the opponents.

General patterns of the diffusion of 2 news events through wire services were ascertained by Hanneman and Greenberg (142). The 2 events were the minor Papal Encyclical entitled "On the Development of Peoples," in which family planning information programs, social problems, and private property were discussed and the major Papal Encyclical, entitled "Of Human Life," which condemned all forms of birth control and interpreted the use of the rhythm method. No demographic differences were found for the 2 Michigan populations used in the study. The importance of the major announcement was reflected by the significantly greater number of subjects who knew of it and the level of event anticipation. The more religious the subject was, the more likely he received the Pope's messages. Both religiosity and salience predicted the accuracy of the subjects' recall of the Pope's message for the major announcement but not for the minor one. The investigators concluded that news

dissemination may be as much a function of the relevance and salience (importance and interest) of news as of news value (per cent who are aware of the event within a certain time.)

Riley (317) questioned whether or not strong media publicity of crimes tends to prejudice media users against the accused person. Telephone interviews concerning an actual crime were conducted with people in 3 cities, one of which was the locale of the crime. The subjects of the study were those whose names had been drawn randomly from the voter registration lists. The investigator found a significant between-city difference in terms of prejudgments and suggested that a change of venue or venire could have been justified. However, when the guilty and innocent prejudgments were analyzed, most of the significant difference was accounted for by the innocent prejudgments. Respondents in all 3 cities exhibited high recall of the crime and knew who the prime suspect was. Those living in the city in which the crime took place stated a greater number of correct facts concerning the situation, but the significance of the difference was not determined statistically. No relationship was found between prejudgments and age, courtroom jury experience, occupation, or education. Men were less likely than women to prejudge. Subjects who gave incorrect information showed a greater tendency to prejudge than did those whose answers were consistent with the newspaper reports.

From his analysis of media response to the Kennedy-Nixon debates of 1960, Altschull (8) concluded that once an analysis of a situation has been made and accepted, it is adopted as universal analytical truth. He challenged the thesis of the book, *The Making of the President 1960*, that the joint appearances of the candidates on television were overwhelmingly significant in the decisions made by the voting public. In a case study approach, Altschull reexamined press reactions by noting the results of independent studies, nonscientific surveys, and newspaper items written before and after the appearance of the book. He found the press at first was guarded in evaluating the 4 appearances but later appeared to accept the analysis made in the book.

Cartoons depicting a protagonist in a disparaging situation were manipulated by Cantor and Zillmann (50) in such a way 1) that the subjects would be either sympathetic to or would resent the misfortune and 2) that the misfortune would be moderate or severe. The subjects in different stages of the experiment gave their spontaneous impression of the humor in each of the cartoons, assessed

their overall liking or disliking for different characters, and determined the kinds of humor in which the element of surprise was essential. The latter step was taken to determine if any differential humor appreciation could be accounted for by novelty effects. Resentment toward the victimized protagonist significantly enhanced the humor situation regardless of the misfortune involved. Increased severity of the misfortune was found to be negligible under conditions of positive affect but significantly impaired humor appreciation under conditions of negative affect. The findings of this investigation were not due to novelty effects.

Shachter (350) compared the results for 2 sixth grade social studies groups in their study of Mexico, one group reading translations of Mexican literature and the other using more traditional supplementary books. The latter referred to materials on Mexico written by people from the United States which included aspects of Mexican culture, such as history, geography, language, and religion. The units on Mexico were similar for the 2 groups, each requiring the same instructional materials and activities and stressing the same major concepts. One group used the translations in class only, and the second group used books from an extensive reading list. The latter group received more instructional time than the first group. The results of "Test of Mexico," prepared by Shachter, and *Stanford Achievement Paragraph Meaning Test* were used for evaluation of each group. The findings indicated that the group reading the translations gained greater knowledge of Mexican culture than the group using traditional supplementary books. The translations were not found to be significantly more appropriate for pupils at any of the different reading levels.

Bishop (28) tested the interaction of anxiety, threat, and reassurance by having subjects come in contact with an article concerned with cancer. The effects of threatening and reassuring headlines, the recall of the content of the article, and an explanation of the reasons for anxiety about cancer were included in the study. An article containing a balanced account of current cancer research was inserted in a regular edition of a laboratory paper published in a university. Half of the stories carried a frightening headline; the other half were written with an encouraging one. Before the newspaper was distributed, students were asked to complete a questionnaire which reflected their readership of health materials, their smoking habits, the information they had about cancer, and their estimate of how much college students worry about 10 diseases. After

the study was concluded, the subjects answered a different set of questions about cancer. The paper was distributed to 77 subjects with the directions to read it at their leisure and to bring it to class 3 days later to discuss the journalistic style. The paper was read by an additional 46 subjects under the observation of a research team. They were told they would be asked to critique any article of their choice. Half in each group received the encouraging headline and the others, the threatening one. The subjects being observed were timed to see how much attention was given to the cancer story. All subjects were tested upon 4 stories, including the one on cancer. Subjects reporting that college students worried about cancer tended to read stories with the reassuring headline more than those with a frightening one. The percentage of readership was approximately the same for the low anxiety group regardless of the headline. However, a larger per cent of the entire group read the material with the encouraging headline; they also tended to remember more information than the other group did. Reported readership of health articles was related to both anxiety levels and a family history of cancer. Mononucleosis, not cancer, proved to be the disease most feared by college students. No evidence was found that persons with a high degree of anxiety tended to avoid material with a threatening headline.

III-17 Research techniques

Wainer and Berg (404) concluded that the multidimensional scaling technique, which has been used in the behavioral sciences for the evaluation of subjective values, can be applied to the study of the structure of students' perceptions of literature. The subjects in this study responded to a questionnaire in which they rated short stories by DeMaupassant on the perceived similarity of the 2 stories. The data showed that the estimates of distances were reliable and stable. The judgments among individuals indicated a homogeneous population. In a test-retest situation, the reliability was high. It was also found that the 2 dimensions students used in making their judgments were *violence* and *fulfillment*. The investigators suggested various ways in which the multidimensional scaling technique might be further tested.

A procedure for identifying the reading interests of sixth, seventh, and eighth grade students was prepared by Eberwein (93). A checklist of 174 book titles taken from the *Junior High School Library Catalog* and classified into 10 main divisions was administered 3 times in one year to obtain reliability information. Pupils were

observed in the library as they selected books from the listed titles. They decided whether or not they would like to read the book and checked the appropriate place on their book lists. When the checked book titles were analyzed, it was found that the average percentage of checks on identical books on the first and last testing was 52.3; for the one month between the 2 administrations, 66 per cent of the same titles were checked. Reading records of the subjects were analyzed to determine if they had read books in each of the classes of books checked on the inventory. The results showed that the book title choices as determined in this study did identify pupil interest.

The technique of segmented audience measures was used by Siller and Jones (358) to determine readership of different content sections within a newspaper and overlap of readership among the different sections. Their purpose was to provide a method of minimizing advertising overlap. The source of the data was a self-administered, aided-recall questionnaire which included an abridged, miniature reproduction of a newspaper divided into quarters. During a 6-week period the respondents reported whether or not they had looked at particular sections. A person was considered a reader if he looked at a minimum of 50 per cent of the quarter pages in that section. Siller and Jones concluded that the study demonstrates the superiority of segmented audience exposure measures based upon sections within the newspaper and allowed a more accurate evaluation of advertising placement over the non-segmented measures.

IV *Physiology and psychology of reading*

IV-1 Physiology of reading

Matheny and Brown (247) studied the reading achievement of monozygotic (MZ) and dizygotic (DZ) twins to compare within-pair variability which may infer the influence of heredity. The subjects, ages 9-12 years, included 44 MZ and 26 DZ pairs. *The California Reading Achievement Tests* (CR) were given individually within one month of each child's birthday. The twins were all of the same sex, but zygosity was determined by 22 or more different blood factors. Within pair variances between MZ and DZ groups were significant, with MZ group coefficients higher on all reading subtests of the CR. Likewise F ratios showed significant differences. The distribution of paired standard scores of the MZ twins was bimodal, which fitted a dominant-recessive autosomal model. Using the midpoint of the range as the antimode of the MZ twins, a bivariate

distribution of the pairs of DZ twins was plotted, using one twin in each pair against the other. The scatter plot showed 13 DZ pairs concordant for dominant expression, 5 pairs for recessive, and 8 pairs discordant. The recessive gene frequency of the 2 groups was 38.5 per cent. The results suggested to the researchers that a part of reading competency may be attributed to heredity.

Wark, Brown, Tostenrud, Walch, Steller, and Gore (407) reported 3 studies of heart rate, reading, and test anxiety. All 3 experiments made use of the Digital Cardiotachometer; the first 2 used 3 electrodes and the third used a single finger photoelectric pulse pick-up. The reading materials were the 100-word cards from the Reading Eye Series at high school, college and adult levels, each followed by 10 true-false questions. In Experiment I, rest-rate was followed by reading 3 cards without questions; then subjects were told that questions would be asked. In Experiment II, they were told after the fourth card. In each experiment, heart rate accelerated over base rate on the first card, but differences decreased. Then when told that questions would be asked, there was a marked increase in acceleration. In Experiment III, 2 sections of Efficient Reading classes were given the test anxiety questionnaire (TAQ). The range in scores was 94 to 274, while averages from other studies were about 179 to 182. From the upper and lower third of the score range of this group of subjects, an unspecified number volunteered to take the test. The high TAQ mean was 218 and the low, 118. These subjects knew from the beginning that they would be tested on the cards read. Heart rate during relaxation was much higher for the high-TAQ group than the low; the same trend occurred during reading but the difference was less. In addition, students who had experienced severe test panic were monitored for heart rate during reading and while answering the questions. They knew that questions would follow all cards. This group showed extreme accelerations on the first card, which decreased to the fifth card. Rate for answering questions was between that of rest and reading until the third card and was higher from the fourth through the eighth card. The authors recognized the limitations of their reading selections and test questions to carry on further analysis.

Powers (306) reported on 260 cases of children and young adults with learning and behavior problems who were treated with dietary adjustments. The glucose tolerance test results for 5 hours was compared to the standard established by Tintera. Deviant sugar curves were of 3 general types: 1) those that were too high for too

long a period, 2) those that were too high and dropped very suddenly to unusually low levels, and 3) the so-called "flat" curves that did not rise or fall. The first group was generally irritable; the second was psychosomatic; and the third listless. Carbohydrate level was limited while proteins were increased, especially at breakfast. Snacks of appropriate protein and starches were ordered when the glucose tolerance level fell below 60 mg per cent. Enzymes, vitamins, and hormonal supplements were used as needed but each case was treated individually. Nine "representative cases" were presented to illustrate treatment. The results reported ranged from dramatic to moderate improvement. Reading gains were reported to be as much as 3 grades in one year. The results suggested another approach to help some children with behavior and learning problems and open up further research avenues.

Fenelon, Holland, and Johnson (105) used the measurements on the electroencephalograph (EEG) as a means for studying the effects of an anti-distractor drug (Nitrazepam) on 3 groups of children: 33 reading disability cases (RD); 14 behavior problems cases (BP); and 12 normals (N). The RD group was retarded from 17.7 months in comprehension to 22.7 months on the Neale reading test. In addition, there were school and parental complaints of a "dyslexic reading problem." The BP group was composed of behavior problems uncomplicated by learning disorders. The N group was composed mainly of children of professional colleagues and was highly selected. Each group, except N, was split randomly into 2 subgroups. In the first 8 weeks the RD_1 and BP_1 groups received a neutral substance—placebo—while the RD_2 and BP_2 groups received Nitrazepam, gradually adjusted in dosage for maximal advantage. In the second 8 weeks, the treatment of the 2 groups was reversed. All subjects had EEGs before drug, on-placebo, and on-drug, and they were read "blind" by a clinical neurologist. Pre-treatment abnormalities predominated in the RD group, with a few in the BP group and none in the N group. The EEGs were classified as: within normal limits, electrically immature, and abnormal. The results showed no statistically significant differences in no-treatment to placebo, but there were differences when treatment included the drug. When subgroups RD_1 and RD_2 were combined, a significant Signs test was found showing effects of the drug on the EEG. Spatial organization of the EEG was studied by comparing the S-index means for the 2 hemispheres. The RD_1 subgroup showed considerably lower S-indices than the BP and N groups at pretest. Over the 3 tests, however,

repeated measures analysis of variance showed Trials × Treatments interaction to be significant for the RD groups only and for both hemispheres. Thus the spatial organization under medication approached the normal pattern. This conclusion is further supported by increased coefficients of correlation between S-indices between the 2 hemispheres in the RD_1 group when it was on the drug. Occipital frequencies were lower at pretest in the RD group than in the others. Again Treatments × Trials interaction showed significant (.001) effects of the drug for the right hemisphere in the RD groups and near significance in the left hemisphere. Such changes in occipital frequency suggest that, in time, improved learning might occur.

Several studies in this section deal with vision and reading. Brod and Hamilton (43) investigated the effects of induced binocularity on oral reading performance. Fifth grade students in a parochial school were judged as poor, average, and good by their teachers and an equal number of each selected as the sample for the study. After the experiment, the *PPS Diagnostic Reading Test* was given to all subjects. Average was defined as ±6 months of grade level and included 38 subjects, while 56 ranked as good readers and 63 as poor readers. To induce binocular disturbance, an aniseikonic lens was used before the left or the right eye, while a plano lens was used before the opposite eye. In the control condition, both lenses were plano. The order of lenses and passages was rotated simultaneously Subjects read 3 equivalent passages from the Diagnostic Reading Tests and were scored according to the directions. Each subject served as his own control, so the change in number of errors from the control condition suggested the effects of binocular disturbance. Both lens conditions increased the number of errors significantly, from .01 to .0001 for the good, average, and poor readers. No comparisons were made of the errors when the lenses were before the right and left eyes, but the table of errors suggests a greater disturbance among poor readers when the lens was before the left eye and the reverse for average and good readers.

The second study, by Zaba, Varland, Grob, and Davis (429) explored the visual problems of 70 college freshmen who scored 425 or lower on the verbal section of the *Scholastic Aptitude Test*. The sample included 34 males and 36 females. The Biopter by Stereo Optical Co. was used as a visual screening test and was scored according to the accompanying operation manual. Moreover, 32 of the 70 reported no visual examinations in the preceding 2 years. Yet, of the 70, only 18 passed all screening tests. In order to determine the

patterns of failures, a principal components factor analysis, rotated to meet Kaiser's Varimax criterion, was performed. Four factors were identified. Factor loadings in decreasing order are shown on each of the 4: Factor 1) Near Point Lateral Phoria, Far Point Lateral Phoria, and Near Point Central Fusion; Factor 2) Near Point Central Fusion, Far Point Central Fusion, and Near Point Lateral Phoria; Factor 3) Far Point Central Fusion, and Near Point Central Fusion; Factor 4) Far Point Lateral Phoria, and Near Point Lateral Phoria. The foregoing factor patterns did not include visual acuity. Combinations of 2 or more problems appeared in 60 per cent of the sample. The conclusion was reached that a significant proportion of these students, who were required to attend a remedial reading program, should have professional visual care.

Two investigations in this section deal with laterality of vision. Dunlop, Dunlop, and Fenelon (88) investigated the incidence of visual defects and crossed laterality among children with a reading deficit compared to those free of reading problems. The subjects were 15 pupils, ages 7 to 11 years, diagnosed as having specific reading difficulty (RD). Their intelligence was average or above, there was no evidence of neurological disorders and their childhood and school attendance had been normal. A control group of 15 advanced readers (N), considered free from reading and learning problems, volunteered to participate in the study. Their ages were similar although the mean was 15 months older than the RD group. Both groups were given the *Wechsler Intelligence Scale for Children* (WISC), language tests, and the *Neale Reading Ability Tests*. The Neale scores showed the N group to be above mean life ages in mean reading rate and accuracy by 14.2 and 8.8 months respectively. The corresponding means for the RD groups were below life age, 19.5 and 16.1 months respectively. Both groups were given orthoptic examinations in which the orthoptist was unaware of group membership. The orthoptic procedures included: 1) cover test and ocular movements; 2) convergence and eye that tended to lose fixation; 3) visual acuity-Snellen E chart; 4) Maddox Rod, and Wing tests; 5) binocular vision; 6) preferred hand for writing; 7) sighting eye (using cardboard cylinder); and 8) controlling eye in binocular vision. This last test was done on the synoptophore, using a pair of fusion slides of macular size with central controls. The controls, a large and small green tree, depicted a house with a door and 2 windows in common. The slides were fused at the angle of fusion, and vergences were given to the point where single binocular vision failed. Since one control moves,

the subject can report the steady control which indicates the controlling eye, especially in divergence. Convergence and stereopsis were scored on a 5-point scale. Group differences appeared in the incidences of different ocular conditions. Those statistically significant, using Chi square, were Convergence Defects (.005), Defective Stereopsis (.025), and Crossed Handedness-Controlling Eye (.001). The difference in incidence of Crossed Handedness-Sighting Eye was not significant. In all differences the RD group demonstrated a larger number of problems. The study of predicting group belongingness identified Convergence Deficiency which misidentified 6 of 30 cases. To determine multiple predictors, 2×2 contingency tables were established for all combinations of variables. Results showed that good stereoscopic function combined with correspondence of handedness and controlling eye identified 14 N's and only 2 RD cases. A trial of weighted variables showed Stereoscopic Vision/Crossed Binocular Control/Esophoria, weighted 5, 1, 2, misclassified only one member of each group when a cut-off score equal to or greater than 6 was used. The various visual measures, including weightings, were summed across subjects to make a Total Visual Score. This score was correlated (Kendall) with reading rate, .357; with reading accuracy, .317; and with Total IQ, .370. The coefficients were moderate to low. Partialling out chronological age, the Total Visual Score and Reading Accuracy correlated .355; partialling out IQ, it was .319. The authors recommended a larger study with younger children before conclusions are reached.

The second study, by Miller and Turner (269), was designed to determine whether there was a developmental trend in hemifield differences in the recognition of words presented briefly. The subjects were 15 from intact classrooms in an elementary school and college students. They were about equally divided by sex and none wore glasses. A 3-channel tachistoscope was used to present stimuli. The stimulus words were drawn from a list of 42 nouns and adjectives, 4 and 5 letters long, selected from the Thorndike-Lorge list. Words had an AA "G" count and a high "J" count. Each subject received 14 words at each of 3 exposure durations. At grades 2 and 4, the durations were 125, 175, and 225 milliseconds; at grade 6, 75, 125, and 175, and at college level, 25, 75, and 125. The differences in exposure times were aimed to provide fairly equal levels of performance. Words appeared an equal number of times to the right and left of the fixation point. After the last trial subjects read the stimulus words aloud from a list. The number of correct words identified at

each exposure duration and stimulus position were recorded for each subject. Analysis of variance showed a main effect of age, indicating that adjustments of exposure times was only partially successful. The highly significant (.001) main effects of exposure times elicited large differences in performance. Words on the right were more frequently identified than those on the left. The only significant interaction was stimulus position and grade level. Plotting proportion correct in each hemifield at successive grade levels showed greater differences in the 2 older age levels. Analysis of position differences showed significant differences at fourth and sixth grade as well as college. When all groups were matched for overall performance at their exposure durations, laterality differences still occurred significantly in the 2 older groups. Finally, correlation coefficients were calculated with a laterality score obtained for each subject by subtracting the total number of words recognized on the left from the total on the right. The laterality score correlated with reading achievement, from the *Stanford Achievement Tests*, .60; with chronological age (CA), .47; and with word recognition, .45. When CA was partialed out, reading and laterality correlated .43. When reading was partialed out, CA and laterality correlated only −.05. When reading achievement was partialed out, the correlation between laterality and word recognition fell to zero. The conclusion was reached that visual laterality effects are associated primarily with perceptual skills developed in reading. Moreover, it was suggested that the strength of laterality might be an index of the extent to which the subject was encoding the stimulus as language.

IV-2 Sex differences

Hill, Hubbs, and Verble (159) analyzed the use made of 10 school-related objects by boys and by girls in kindergarten, at second, and fourth grades. The subjects were 48 pupils, randomly selected except that there were equal numbers of boys and girls. Pictures of the objects (*i.e.*, desk, book, crayon, library) as well as 3 items for girls (doll, purse, jump rope) and 4 items for boys (truck, ball, gun, blocks) were mounted on 5 × 7 inch construction paper, with the name below the picture. As they were shown to each subject individually, the child was asked to name the picture. Then they were asked "Who uses it—a boy or a girl?" If necessary, they were asked "Who uses it most?" There was unanimous agreement on the sex-related toys. Over all grades, girls thought most school-related objects were used by girls, except book and map, while boys were about

equally divided on the number of objects used by each sex. At kindergarten level, girls said about half of the school-related objects were used most by girls but by second and fourth grades, girls thought all school objects, except maps, were used by girls. At kindergarten, boys thought that they used the school-related objects most often but by second grade, they thought that more of the objects were used by girls. At fourth grade, boys thought an equal number were used by each sex.

Asher and Gottman (14) investigated the effects of male versus female teachers, at fifth grade, on reading achievement. Two experiments were reported, done in consecutive years. In Experiment I, there were 10 male and an equal number selected from 24 female teachers. In Experiment II, 13 male teachers were reported and, presumably, the same number of females. Otherwise the second replicated the first. The *Iowa Test of Basic Skills*, Reading Comprehension subtest, given annually in September, provided the comparative data. The investigators found that girls were superior to boys by nearly a half grade at the pretest, a difference that was significant (.01). Furthermore, better readers were assigned to male teachers. Between the fifth and sixth grades, boys and girls did not differ significantly in gains of reading scores, regardless of the 3 statistical procedures used. No interaction between pupil sex and teacher sex was found. The second experiment gave the same results so it was concluded that, at fifth grade, male teachers exerted no effect on pupils' reading, especially that of boys as had been anticipated.

Samuels and Turnure (343) investigated sex differences in classroom attention and related it to reading achievement at first grade, to determine if attentiveness accounted for greater reading gains of girls. The subjects came from 4 classrooms using traditional reading instruction. Attentiveness was scored at 4-second observed intervals during the reading hour, with 15 visits to each classroom during a month. Task relevant behaviors (*e.g.*, looking at text or teacher) were considered attentive; while closing eyes, playing with nonassigned materials, and the like were considered inattentive behavior. The proportion of positive instances divided by the total of positive and negative was the score used. A reliability of raters of 89 per cent was obtained. Reading achievement was determined by recognition of 45 words, randomly selected from the Dolch list of basic sight words. An unidentified reading readiness test provided scores used as a covariate in analysis of word recognition and in partial correlation. Attention scores were placed in 4 quartiles. The

analysis showed no significant *t* differences in readiness between boys and girls. However, the difference in attention score favored girls (.01). Mean word recognition scores were higher for girls (30.03) than for boys (22.68); these scores increased from the lower to the upper quartile of attention. A Sex Attention analysis of covariance, using reading readiness as a covariate, resulted in a main effect for attention (.001) and for sex (.05) but not for the interaction of the 2 factors. Significant Newman-Keuls differences were found for each of the 4 attention quartiles. The correlation coefficient between attention and word recognition was .44; partial correlation controlling reading readiness was also .44.

Johnson (182) studied sex differences in reading in Canada, England, Nigeria, and the United States, all English-speaking nations. The subjects were at grades 2, 4, and 6. The subjects in Nigeria were one year older than in the other 3 countries. Moreover, boys in school outnumbered girls in Nigeria about 3 to 1, so the sample was more limited. The *Gates-MacGinitie Reading Tests* were given to all subjects. In addition, 4 experimental subtests from the *Wisconsin Design Word Attack Battery* were used to determine progress in word analysis. Univariate analysis of variance in which sex was nested within grade and grade within country was applied to results of all 6 test scores. In Canada, 14 of the 18 mean scores favored girls, but only 6 were significantly different. Second grade girls scored higher in comprehension, variant consonants, and vowels. Fourth-grade girls surpassed boys on variant consonants and structural analysis. At grade 6, boys surpassed girls (.05). In England, however, boys scored higher than girls on 11 of 18 comparisons. There were no statistically significant differences at grade 2, and only one at grade 6, which favored boys on the vocabulary test. At grade 4, boys surpassed girls on vocabulary, beginning consonants, variant consonants, and vowels. In Nigeria, boys exceeded the scores of girls on 15 of 18 tests. Girls scored higher than boys only at grade 4 on beginning consonants, variant consonants, and structural analysis; but none of these differences were significant. In the United States, mean scores of girls were higher than those of boys in 16 of 18 comparisons. However, significant differences favoring girls were found: at grade 2, variant consonants; at grade 4, variant consonants and comprehension; and at grade 6, structural analysis. To summarize, boys generally scored higher than girls in England and Nigeria; the reverse was true in Canada and the United States. The conclusion reached was that sex differences could be attributed to

cultural rather than physiological factors. Proportionately, children in Canada and the United States were taught by more female teachers; the reverse was true in the other two countries. Moreover, about 80 per cent of Canadian and American teachers judged their girls to be better readers, and Nigerian teachers expected their boys to read better. English teachers were divided, 6 of 9 thinking girls were better. Only in the United States did girls consistently surpass boys across 3 grades.

IV-3 Intellectual abilities and reading

Wechsler Intelligence Scale for Children (WISC) profiles were examined again by Ramanauskas and Burrow (309). This study, however, matched the mental ages of 62 pupils of average ability (mean IQ = 99) with 35 who were mentally retarded (mean IQ = 67) to determine profile deviations of the latter group who were poor readers. In addition to the WISC scores, the grade-equivalent score on the oral reading paragraphs of the *Gates-McKillop Reading Diagnostic Tests* was used. Those with reading scores 2 years below mental age were considered to be poor readers. Using a computerized matching technique, WISC subtest scores of all subjects were sorted into 6 groups, each with minimum within-group variance and maximum between-group variance. Good and poor reader groups among mentally retarded were then compared with those above average on IQ, using the profiles of the WISC. The *t* statistic applied to composite profiles of good and poor readers of high IQ showed that good readers were significantly superior (.05) to poor readers on the Similarities subtest while poor readers surpassed good readers (.05) on the Object Assembly subtest. Comparisons of high-IQ poor readers with low-IQ good readers revealed statistically significant differences in all WISC subtests. In reading, however, the mean reading score of the mentally retarded was 4.3, compared to that of 3.1 for the high-IQ group, a difference which was significant (.05).

Miller (270) explored the predictive values of the *Peabody Picture Vocabulary Test* (PPVT) and the *Slosson Intelligence Test* (SIT) compared to the *Lorge-Thorndike* (LT) group intelligence test. One third grade class was randomly drawn from each of 2 largely rural schools with somewhat different socio-economic ratings. The *California Reading Test* served as the criterion measure. A correlation matrix showed significant positive coefficients among all tests. A test between correlation coefficients showed no significant differences between the SIT and LT, nor between the PPVT, SIT, and LT.

The LT coefficient of .60 was the highest with reading. Distributions of the SIT and LT did not differ significantly from normal, but that of the PPVT was skewed positively. An analysis of variance showed significant mean differences among scores on the PPVT, SIT and LT with the SIT score higher. Since the LT correlated highest with reading and the SIT gave the highest score, the author recommended averaging the 2 for prediction of reading scores.

Henderson, Fay, Lindemann, and Clarkson (158) sought to establish the best single predictor and group of predictors of reading achievement of 8 year olds based on tests for 7 year olds, separating boys from girls and whites from blacks. The subjects were 709 who had reached the age of 8 years, from a group of 3,137 in a larger study. They were controlled for socio-economic status and duration of schooling. There was little difference between white and black socio-economic status. Almost all subjects were examined within 3 months of their seventh and eighth birthdays. The predictive tests of the 7 year old group were: the *Wechsler Intelligence Scale* (WISC), the *Bender Gestalt Test for Young Children*, the Word Association subtest of the *Illinois Test of Psycholinguistic Abilities*, the *Goodenough-Harris Draw-A-Man* or *Draw-A-Woman Test*, and the *Wide Range Achievement Test* (WRAT), subtests for Reading, Arithmetic, and Spelling. The 8 year old test was the *Gray Oral Reading Test* scores. Simple correlations of each predictor with the Gray test were calculated for each sex and race to determine the predictive power of that particular test. Multiple correlations determined the amount of variance accounted for by each predictor and stepwise regression ranked tests according to their predictive contributions. The investigators found that with the exception of the Draw-A-Man Test, differences among all groups were significant beyond the .001 level. White girls ranked first in mean scores on all tests, followed, in order, by white boys, black girls, and black boys. The order on individual tests was given but cannot easily be summarized. In magnitude of simple correlations, white males ranked first, followed by black girls, white girls, and black boys. Multiple correlations were highest for black females, then for white females, white males, and finally black males. Multiple correlations of pooled males compared to females were greater than between pooled blacks compared to whites. Stepwise regressions on the Gray test showed that the 7 year old reading test accounted for 47 to 57 per cent of the total predicted variance and was the most efficient predictor for each sex and race as well as the total group. No subsequent test added as

much as .03 to the regression coefficient. The second test was the spelling test, for all except black males; for them, the Performance IQ ranked second. Differences in groups began to appear after the second step. Eliminating reading from the battery, the spelling test was the best predictor for all groups. For female groups, arithmetic ranked second; for males, Verbal IQ was second. When all achievement tests were eliminated, the Verbal IQ placed first for the total group and for all whites, while the Performance IQ ranked first for pooled black groups. When achievement tests were eliminated the variance by all other tests did not account for 31 per cent in any group. The Performance IQ was the most effective predictor for black males. The major purpose of the study, concerning banning the IQ test, was answered when the reading and other achievement tests were generally best, but the contribution of the Performance IQ to prediction with black males should be noted.

Yule, Rutter, Berger, and Thompson (428) examined the distribution of over- and under-achievers in 4 IQ bands to determine the regression effect, particularly at the extremes. The population sample was from the Isle of Wight except for 1,634 ten year olds from London. Pupils were 9, 10, 11, and 14 years of age. A *Non-Verbal Intelligence Test* and the SR1, NS6, SR[1]A[1] group reading tests were administered. In addition, all children scoring below 2SD from the group mean and other randomly selected pupils were given a short form of the *Wechsler Intelligence Test for Children* (WISC) and *Neale's Analysis of Reading Ability.* Discarding the achievement ratios devised by different authors because the correlation between intelligence and reading is less than unity, each of the 5 population samples was divided into 4 groups: IQ at least 2SD below mean; IQ between 1 and 2SD below mean; and IQ at mean. None rated more than 2SD above because of the ceiling effects of the reading tests. The mean reading scores in each group were calculated. Only in the mean group did mean IQ and reading scores correspond. In the higher IQ groups, the mean reading score was lower; in the lower IQ groups, the mean reading scores were higher, showing the regression toward the mean effects. After discovering that the assumptions for regression were met, regression equations for each of the 5 populations were calculated and compared with the actual reading ages. Overall, the proportion of over-achievers was similar to that of under-achievers except for the extreme ranges. Evidence was given that the per cent of pupils *greatly* below that expected for their ages and intelligence was greater than in the normal distribution. The

individual tests were given to these extreme cases, and all except the 9 year olds fulfilled the regression requirements. Thus, for all groups except this one, the randomly selected control group was used to calculate a regression equation predicting reading scores on the Neale test from the short WISC scores. Comparing observed to predicted Reading Accuracy and Comprehension, the per cent of retardation was actually higher. For example, in the London 10 year olds, the observed per cent was 6.32 compared to the predicted 2.28. This finding led to the conclusion that there is a group of children with severe and specific reading retardation which is not just the lower end of the normal continuum.

IV-4 Modes of learning

Daniel and Tacker (72) studied the effects of stimulus input and memory for CVC trigrams when presentation was congruent with, and incongruent with modality preference. Subjects were selected from 105, ages 7.5 to 8.5, enrolled in a Laboratory School. All chosen had IQ's of 90 or above on the *Cattell Culture Fair Intelligence Test* and the *Peabody Picture Vocabulary Test*. Eliminating those with hearing problems on an audiometer or vision problems on the Keystone Visual Survey Telebinocular, 80 subjects remained. They were given the following subtests of the *Illinois Test of Psycholinguistic Abilities*: Auditory Reception, Auditory Sequential Memory, Visual Reception, and Visual Sequential Memory. In addition, subtests from the *Detroit Tests of Learning Aptitude* were: Auditory Attention Span for Unrelated Words, Auditory Attention Span for Related Syllables, Visual Attention Span for Objects, and Visual Attention Span for Letters. Each subtest yielded an age score which was averaged over the auditory and the visual tests. Subjects whose auditory age exceeded their visual age by one or more years (N = 17) were placed in the auditory preference group (APG). Those whose visual ages exceeded their auditory ages by one or more years (N = 17) were placed in the visual preference group (VPG). Subjects with auditory and visual age disparity of less than 6 months (N = 19) were called the nonpreference group (NPG). Random discarding reduced each group to 15 members. CVC trigrams having association values of 97 to 100 per cent were randomly selected and 8 were assigned to auditory and 8 to visual lists. Auditory presentation used a Rheem Califone while visual ones used an automatic slide projector. About 75 seconds was required for the presentation of each list. Pretraining a week before testing included 2 each of auditory and

visual presentations used. During the experiment, 3 test trials were given at 3-day intervals. On each day subjects had one auditory and one visual presentation. A $3 \times 3 \times 2$ factorial analysis of variance showed no main effects of groups, trials, or mode of presentation. Overall, neither presentation mode was superior. However, the interaction of groups and methods was significant (.05), showing that the 3 groups learned differently under the 2 modes. The APG recalled significantly more trigrams with auditory presentation while the VPG recalled more with visual presentation, and the NPG scored similarly by both types of input. Moreover, the NPG performed poorer than either APG or VPG under their preferred mode but better than under their nonpreferred presentation mode. Thus the conclusion was reached that preferred modality of input influenced learning on an elementary task with small amounts of practice.

Siegel and Allik (357) investigated modality effects on short-term memory for serially presented items at kindergarten, at grades 2 and 5, and at college level. Subjects were 8 males and 8 females at each of the 4 levels, all average or above in intelligence and from middle class socio-economic backgrounds. The stimuli were 135 black line drawings of objects and animals, easily labelled. The total was divided into sets of 7, presented at a rate of one picture, or one name of a picture, per 4 seconds. No stimulus was used more than once within any experimental condition. For the visual presentation, there were 7 one-inch spaces, below each of which was a response button, which the subject pressed for his choice. A Lafayette digital timer connected to the buttons permitted latency recording of 1/100 second. The auditory condition presented the stimuli from one of 7 small auxiliary speakers connected to a Sony tape recorder. Each subject was tested individually in 2 sessions of 40-60 minutes, approximately a week apart, except for college students who had one 90-minute session. Order of the 4 conditions was counter-balanced, following 2 practice problems of 4 items each. All stimuli were presented in left-to-right order. The 4 conditions were: visual presentation-visual recall cue; visual presentation-auditory recall cue; auditory presentation-visual recall cue; and auditory presentation-auditory recall cue. Following the seven visual or auditory presentations, the examiner showed 2 nonadjacent pictures, or named 2 pictures, and the subjects pressed the buttons showing the position in which they were shown or heard, called Probes 1 and 2. Each serial position was probed 4 times—twice as a first and twice as a second probe. Latency between cue and buttonpress was recorded,

but there was no feedback. A mixed analysis of variance with appropriate repeated measures was the statistical procedure used. The main effect of grade level for per cent of correct recall was significant: college students surpassed all groups of children (76 per cent); fifth graders surpassed the lower 2 groups (61 per cent), but second graders (52 per cent) did not differ significantly from kindergartners (47 per cent). Girls (62 per cent) surpassed boys (56 per cent) but Grade × Sex interaction was not significant. Visually presented stimuli produced a higher level of correct responses (64 per cent) than did auditory (54 per cent). Neither the main effect of recall cue modality not Presentation Modality × Recall Cue Modality interacted significantly. The overall effect of serial position was highly significant. Both the beginning (primary) and end (recency) positions showed highest per cent of recall. The Grade × Serial Position interaction was also highly significant (.005). With adults, performance at the intermediate positions was not significantly lower than at the first and last positions, but they were lower for all groups of children. Presentation Modality × Serial Position interaction was significant but was due largely to the first 5 serial positions, as the last 2 were quite similar for both presentation modes. There was practically no difference between first and second serial positions for visual presentation, but performance was much better on the first than on the second with auditory presentation for children. All groups of children made more correct responses to Probe 1 than to Probe 2, the difference being due almost entirely to auditory presentation. Examination of the Probes at different serial positions showed the first 5 under auditory conditions similar but differences occurred at serial positions 6 and 7. At the first 5 serial positions recall of visual stimuli was superior to auditory under Probes 1 and 2; at positions 6 and 7, Probe 1 was significantly better than Probe 2 under auditory than under visual stimulation while the reverse was true for Probe 2. Examination of latencies for correct responses showed regular decrease with increasing age. Besides, mean latency was significantly longer for auditory than for visual presentations. The interaction of Presentation Modality × Recall Cue Modality was significant due to auditory presentation—visual recall cue conditions being significantly greater than any of the other 3 conditions, which were not different from each other. The results are interpreted to mean that visually presented items were labelled (covertly) and rehearsed within the visual-auditory system to produce superior results, while auditory stimuli were detrimental to cumulative rehearsal of materials.

Cushman (69) explored differences in learning meaningful materials by visual, audio, and combined audiovisual presentations. The stimulus materials for learning were 3 pairs of stanzas from a 6-stanza poem. The affective measures was the semantic differential scale, with 10 polar descriptive terms. Besides, at the end of testing, subjects were asked some questions, one of which dealt with their preferences of the treatments. Cognitive tests included an unspecified number of questions on the poem. Twenty-four subjects received all 3 treatments in varied sequences. Another 24 had only one of the 3 treatments with repeated measures. This procedure permitted a test of the difficulty of the stanzas and the questions on the 3 presentations. The mean numbers of errors per treatment were Audio, 6.44; Visual, 5.94; and Audiovisual, 2.88. Analysis of variance also showed the combined treatment to be superior to either single approach. In the second part of the treatment, where 8 subjects were assigned only one treatment, the mean errors were approximately the same and analysis of variance for repeated measures showed the audiovisual presentation significantly (.001) superior to the other 2. No significant affective differences were found on the semantic differential scale. Questioning showed that 96 per cent preferred the combined treatment. The findings are interpreted as supporting the Cue Summation Theory.

Young (426) investigated the relative efficiency of reading and listening comprehension and retention under controlled conditions. He used 14 informative messages, developed earlier for listening, each about 1½ minutes in length, and covering a variety of topics. For each message, 2 multiple choice questions were designed to recall facts, recall ideas, and generate valid inferences. A tape of the 14 messages was recorded at 175 words per minute by 7 male and 7 female speakers. Two minutes of silence followed each message to allow for answering the 6 questions. For the reading condition, the same messages were recorded on 16 mm silent motion picture film with a frame for each line so that exposure time for each message equalled auditory exposure. Each message was followed by 10 seconds of blank film; then the projector was turned off for 1 minute and 50 seconds to allow time to answer questions. Following a sample message and questions, subjects completed the experiment in about 55 minutes. The subjects were 90 college students, between 18 and 21 years of age, randomly assigned to the 2 treatments. Also, 31 additional students served as a control group, reading the messages from the printed page and answering the questions at their

own rates. This group completed the test in about 40 minutes. One week later, all experimental, but no control, subjects answered the same questions without reading or listening to the messages. Internal consistency of the total test and 3 skill areas was calculated by the Kuder-Richardson 20. For listening, the consistency was .82 and for reading, .79; although it was considerably lower for the 3 types of questions making up the subtests. Analysis of variance included reading versus listening and immediate versus delayed recall. A significant effect for time of testing (.001) was shown but no other comparisons were significant. Thus no difference in comprehension was evidenced between reading and listening. Most of the time variance was accounted for by differences between scores on facts and ideas. To determine the effect of the artificial reading situation, the control group was compared with the reading treatment experimental group and no significant differences were found on total scores. However, the control group scored significantly higher (.05) on facts.

Sachs (339) sought to determine whether the pattern of retention of the wording and the meaning is the same during reading as during listening. The subjects were equally distributed by sex and paid to be in the experiment. The materials included 24 passages of connected discourse, 4 for practice. For the 20 passages there was a set of sentences which could appear in the passage along with the following changes of the sentence: semantic, passive/active, formal, and lexical. Moreover, the intervals between the original and test sentences included 0, 20, 40, and 80 syllables. The base sentence was used in the passage half of the time and a changed version the other half. In all, there were 5 relationships between original and test sentences, 2 orders of presentation of the test sentence, and 4 amounts of interpolated material. These 40 conditions led to the preparation of 40 tape recordings, each of which was submitted to 3 subjects at separate times. In the auditory presentation, a passage was interrupted by a bell; and a test sentence was heard then. The subject marked, in a booklet, "identical" or "changed"; if the latter, he was asked to classify change as in meaning or form of the sentence. In addition, he rated his confidence in his judgment on a 5-point scale. In the visual presentation, another group of subjects used the same materials except that both the passages and the test sentences were read silently. One passage appeared on each page and as soon as it was read the subject turned the page to the test sentence and rated his confidence in the answer. The score was the

per cent of correct responses minus the per cent of "changed" responses at each interval of intervening material (IM). In semantic changes, at IM = 0, correct identification of type of change was 79 per cent in the auditory and 80 per cent in the visual conditions. For formal changes, at IM = 0, correct responses were 95 per cent in the auditory and 82 per cent in the visual conditions. In the auditory condition, semantic changes were easier to recognize than any others. At IM-20, active/passive, formal, and lexical changes were above chance, but at IM-40 and 80, none of the changes which left meaning intact were recognized better than chance. For the visual condition (reading), at all IM levels, the semantic and active/passive changes were recognized well above chance levels. At IM = 0, all types of sentence changes were well recognized. At IM-20, formal changes were above chance. At IM-40, lexical changes were above chance and at IM-80, both lexical and formal changes were recognized. It is possible that in reading, less time was required to read than to listen, so that may have affected the results. The conclusion was reached that the retention of semantic content is high for at least 80 seconds and the presentation modes, visual and auditory, are similar in general pattern.

IV-5 Experiments in learning

O'Malley (289) tested the effects of pretraining and set size on multiple discrimination of letters of the alphabet. The test was modified from a recall to a recognition model. Subjects were 24 girls, ages 54-75 months, who had not learned the names of the letters of the alphabet. All were from an innercity preschool. Two groups of 8 capital letters were used: perpendicular form, and oblique form. Pretraining included slides with various combinations of 4 colored letters, with a single "choice" letter elevated and centered above 4 "sample" letters. Within any group of 8 slides, a letter appeared once in the choice position and twice in any one of the sample positions. Slides for training were the same list used for each subject during pretraining. However, letters were white on a dark background. There were 4, 2, or 1 set(s) comprising a full list of 8 letters. Demonstration slides included colored pictures of 8 familiar farm animals. The materials were presented in the Computer Assisted Instruction Laboratory, where subjects could respond on a touch-sensitive surface. Pretest materials were designed to identify any subjects who knew the letters but also were used for post test purposes. Analysis of variance of pretest and post test scores revealed a

significant interaction between pretraining, sets, and tests. The main effect for list form approached significance as the oblique letters were easier than the perpendicular ones. A significant gain was made by those who had 4 sets and were pretrained on shape, and those with 2 sets pretrained on color. Analysis was made of each subject's complete response record throughout the study since 20 of the 24 subjects failed to reach criterion (2 correct responses to 8 letters). The results showed that pretraining with shape when there were 4 or 2 sets from the full list produced the greatest number of acquired criterion letters. Likewise, results showed the mean per cent correct for the 4-set group was 51 compared to 28.75 for the 2-set group. Only one of the former, but 3 of the latter group failed to reach criterion.

Ackerman (2) investigated the order in which concepts of letter-sound correspondences would be introduced to effect a learning set and promote the formulation of a rule to account for many relationships. In addition, 2 instructional procedures were used: paired-associate tasks, and conceptual tasks. The 60 subjects enrolled in 4 kindergartens were randomly assigned to the 6 groups. All groups had 4 stimulus words with the letter *a* either as in *pan* or *pane*. The constant training group had only *bad*, *bat*, *pan* and *pat*, while the variable group learned *bat*, *bate*, *pan* and *pane*. The words were exposed in pairs and pronounced and the rule presented. The list was presented in 9 random orders with 18 trials. The variable group learned one each of the sounds of *a* and was given the rule. The conceptual group training consisted of 3 phases: 1) show a word pair such as *man* and *mane*, and explain the rule, after which 12 pairs of words were sorted as examples; 2) the experimenter asked which of a pair contained the /ae/ or /e/ sound, then placed the word with stimulus word to which it belonged until 12 pairs were sorted; and 3) a shuffled pack of 24 cards, 12 of each sound, was given to the subject who was asked to say the vowel value and place the word with the model. Subjects in the constant and variable groups had 72 paired associates and in the conceptual group, 72 words in 3 phases. The transfer test for all groups replaced the letter *a* with the letter *i* in 3 and 4 letter words, taught as paired-associates, with 18 trials. An analysis of variance showed a significant treatment effect. Tukey's HSD *post hoc* test showed that both the conceptual and variable groups significantly surpassed the constant group on the transfer test but the conceptual and variable groups did not differ. Even an analysis of covariance, using the *Metropolitan Reading Readiness Tests* scores as covariates, showed the same results. The types of

transfer errors were examined for all 3 groups. The constant group made the largest number of errors, especially omissions. This is interpreted to mean that a "set for diversity" leads pupils to try different means for decoding. There was no evidence to suggest that one of the 2 training procedures was superior to the other.

Rystrom (337) examined the strategies developed by first graders in learning phoneme-grapheme correspondences and especially determined any differences between those who spoke black English and white English. The subjects were 63 pupils entering 3 first grade classrooms, who remained throughout the year. A reference group of 70 college students took the same test during the school year. The *Forced Vowel Selection Test* (FVST), used in the experiment requires the selection of an *a*, *e*, or *i* to fit in a particular word. The 23 words included at least 3 long and 3 short vowels and used them in different positions. The words were ordered to form a simple message, which was read to the pupils before they filled in the blanks. Moreover, the experimenter did not give the initial test until pupils were able to write the 3 vowels. The adult subjects made 5 unpredicted answers of the 1,500 required by the FVST showing that mature readers have patterned responses. At the time of the pretest, both black and white pupils' mean correct responses were slightly over 7, which is random as had been hypothesized. By the end of first grade, black pupils' mean score was 9.91 and white pupils' mean was 11.02. The Welch-Aspin *t*-test showed significant (.01) gains in the FVST scores during the year and confirmed the hypothesis that these children performed more like adults. An examination of responses to particular pretest words revealed no tendency to use long vowels because they were the same as their letter names. At post test, however, there were increased significant relationships (38 per cent) between letter names and letter sounds, and they were accounted for by strategies other than letter name-sound correspondences. Moreover, many of these words had not appeared in subjects' instructional materials, but those in pupils' sight vocabularies were most accurately marked. There were no significant differences between the performance of black and white subjects on the FVST on either the pretest or post test. Hence the conclusion that phonological differences between spoken English do not appear to affect reading strategies.

Muller (276) reported 2 experiments investigating the transfer of learning names subsequently used in words with and without training instruction in sound blending. The subjects were 14 first

graders, tested during December and January. They were randomly assigned to each of 5 treatment conditions. The letter training treatments were phonics training (PT); letter training without phonics (NPT); letters observed but not labeled (OT); warm-up training, not using the task letters (WT); and no training for control (NT). Prior to a word-naming task, subjects were trained individually in one of the conditions. The training was done with individual letters, except for the OT and NT groups. The PT and NPT groups learned names for letters which were later used to construct words. The WT group learned letter names not used in words. The PT group also learned letters that could serve as sounds within the subsequent words. The NPT and WT subjects learned letter names unrelated to the sounds in the words. The OT group merely observed the letters. Following letter training, all subjects learned the same word-naming task with criteria of 2 successive errorless trial blocks or 20 trial blocks. Four 6-point random shapes and nonsense monosyllabic words were used as letter names. In Task II, words were familiar English words but composed of 2 nonsense letters. Using correct anticipation on the last 2 trial blocks, an analysis of variance showed no significant differences between means of PT, NPT, and WT groups. No differences in Task I learning in these groups were found. In Task II only the WT and PT treatments required fewer learning trials than the NT group. Analysis of variance showed a significant difference only between the WT and OT means. The conclusion was reached that PT produced no more transfer effect than WT. In Experiment II, all subjects were given preliminary phonic blending prior to Task I, with 25 words involving none of the sounds or words in the experiment. Fifteen subjects were assigned to each of PT, NPT, and NT groups. No differences were found between PT and NPT groups on the final 2 trials. However, the mean number of trials to criterion showed that PT and NPT groups were superior (.05) to the NT group. Besides, the blending training improved Task II of the PT group (45.13 trials in Experiment 1; 30.87 in Experiment II.)

Erickson and Otto (97) explored the interaction of 40 impulsive versus 40 reflective pupils, and interaction with intra-list similarity and dissimilarity, on learning word recognition accurately. Subjects were assigned to treatment cells on the basis of sex and performance on a 10-item form of the Matching Familiar Figures (MFF) conceptual tempo test. Subjects were predominantly white and middle class. The test was scored by response latency and total number of errors for each item. For all subjects, the median response time

was 7.85 seconds and median error was 16. Subjects who scored below the median on response time and above the median on errors were classified as having impulsive conceptual tempo. The remainder were classified as having reflective conceptual tempo. Mean response time for impulsive was 5.25 seconds and for reflective, 15.0 seconds. Mean errors for impulsives was 20.95, and for reflectives, 10.58. The 4 words in the acquisition task comprised 16 letters in the low similarity list (LST) while the 4 on the high similarity list (HST) used only 4 letters in various combinations. The recognition task included the original word with a different second letter and one with a different final letter to test similarity of conformation. The generalization task included 4 new words, each with one new letter substituted systematically across all positions. Each word was identified and explained by the investigator; then 12 trials were given in serial order in which the subject tried to say each word before the experimenter did. Then the cards were shuffled and presented in random order to a criterion of one correct anticipation for the entire list. In the recognition task, the experimenter pronounced the word and the subject chose between the 2 distractors with response time and response recorded. On the generalization task the subject was asked to read each word. Response time and errors were recorded. Differences between cue means with Hartley's test for homogeneity of variance showed that the high similarity and low similarity populations exceeded the critical value of .05, but supported the assumption of homogeneity for the dependent variables. Analysis of variance showed that the HST required significantly more trials to learn (.01). Contrary to expectation, the difference between the impulsive and reflective subjects in trials to criterion did not favor the impulsive subjects. Subjects who learned the HST gave significantly (.01) more correct responses on the word recognition task than those who learned LST, and reflective subjects surpassed impulsive (.05). The difference between the 2 lists did not favor the impulsive as anticipated. Likewise, the expectation that impulsive subjects who learned the HST would make fewer false generalizations than those who learned the LST was not supported, but the same comparison for reflective children was supported (.10). Coefficients of correlation between response times on the MFF and the recognition (.68) and generalization task (.49) were significant. No sex differences were found.

Christina (57) examined the effects of illustrations in acquiring sight vocabulary of visually similar, auditorily similar, and visu-

ally and auditorily similar words. Subjects were 120 kindergartners from 6 classrooms. To each of 8 treatments, 15 subjects were randomly assigned. The treatments were different combinations of the presence and absence of illustrations along with high and low word similarity in the above-mentioned dimensions. High visual similarity words used 3 different artificial graphemes while low visual similarity lists used 6 different graphemes, each to construct a 4-word list. High auditory similarity used *ball*, *bowl*, *doll*, and *bell*; low similarity included *ball*, *cat*, *lamp*, and *dog*. Data were analyzed by dividing 12 trials into 6 blocks of 2 trials each and averaging correct responses. The only significant main effect was illustrations, which assisted in acquiring sight vocabulary.

McMullen (261) examined the effects of minimal contrast (MIN) compared to maximal contrast (MAX) among word forms on learning 18 words. The subjects were 39 first graders and 31 second graders from a multi-racial economically depressed neighborhood. All subjects had participated in the Stanford Program on Initial Reading and were divided into the fastest and slowest half of each grade-sex group to reach criterion on another component of the program. Each subject served as his own control. Six study sessions, one for each list of words, alternated MIN and MAX lists. The lists were 18 words from a pool of 45, organized into "itemsets," composed of 3 words with the same final unit but a different initial unit. The MAX list included 3 words per set from different itemsets. All words were high-frequency, concrete nouns. The words were presented on a Model 33 teletype connected by a telephone line to a computer. The first 2 instructional sessions included pronunciation of the word as it appeared, after which the subject typed it and was either reinforced or corrected by the machine. On the third trial, all 3 words appeared and the subject was told to type one of them. By the sixth trial, no words were shown but the subject was expected to recall and type the word when it was pronounced. After the eighth trial, subjects continued recall until a minimum of 4 minutes had elapsed. Each test session presented the subject's 18 words randomly grouped twice with no time limit. The first trial was recognition and the second was recall. Two measures of retention taken at the time of the test were: mean proportion correct, and response latency. A third measure was the time required for each subject to complete each of his 6 lists during study sessions. For each subject, there was a pair of scores: one on the MIN and another on the MAX lists. No overall significant differences were found between MIN and MAX list items for the

mean proportion of the total test, nor for success latency measure. Individual subgroup differences were found, however. The average time to complete learning trials significantly (.05) favored the MIN list items. However, one subgroup, first grade males, was largely responsible for this difference.

Cobb and Hops (60) explored the causal relationship between reading achievement and classroom behaviors of attending, working, volunteering, and looking around by an intervention procedure. The subjects were 18 children in 3 first grade classrooms. Six subjects in each classroom who had low scores on the *Gates-MacGinitie Reading Test* and had low academic survival skills were identified. Survival skills were obtained by observations during reading periods for 5 consecutive days, of 2 continuous 8-second intervals, and proportion of time spent looking around which was subtracted from that spent attending and working to constitute the survival scores. Intervention, taught to the teachers, included collecting baseline data for 3 days, and programing of social and nonsocial reinforcers. Potential reinforcers were free time, extra recess, and academic games. Social praise and vicarious reinforcement, as well as ignoring inappropriate behaviors, were practiced by the teachers. Explanations of appropriate behavior, and demonstrations, as well as the timing mechanisms were explained to the children. They had an opportunity to add to the list of group reinforcers to be used. During the first week, reinforcers were awarded immediately, but thereafter more than one day was required until the final of 5 successfully completed days; but then the reinforcement was of greater magnitude. The experimental subjects increased their survival skills from .49 to .61 during intervention. Besides, 4 to 6 weeks later, the proportion was .63. The control subjects began at .62, ended at .64, then decreased to .54 at the follow-up time. Analysis of variance showed significant treatment and interaction effects. Matched groups confirmed the above findings. The *Gates-MacGinitie Reading Tests* were repeated at the end of intervention and at the follow-up time. Statistically significant treatment (.005) and interaction (.05) effects were found for changes in mean standard scores on the reading tests. The control group gained 2.3 standard score units; the experimental group gained 10.6 units during intervention. To follow-up, the comparative gains were 1.9 and 6.0 units. The greatest gains in survival skills accompanied the greatest gains in reading achievement, suggesting a causal relationship.

Haase and Aiello (138) explored the effects of 3 levels of sonic affect on the serial learning of fifth graders, using both a visual

and an auditory presentation. Sonic affect refers to the pleasantness or unpleasantness of letter sounds based on a scale. The term and scale have also been applied to the sounds of words. In this study, 30 pupils from each of 2 schools were the subjects. One school was largely white middle class while the other was international, coming from a variety of language backgrounds. All subjects had scores on the *Metropolitan Achievement Test*, Reading section, of at least grade 4.9. In each school, 10 subjects were randomly assigned to each of 3 sonic affects. The words were randomly chosen from 100 4-letter nouns rated AA on the Thorndike-Lorge Word List. After evaluation for sonic affect, 23 were rated pleasant, 45 neutral, and 23 unpleasant. All had a meaningfulness rating of 10. Then 16 words were randomly selected from each sonic affect level and randomly assigned to either visual or auditory presentations. For the auditory presentation, 8 words were recorded on a cassette tape at the rate of one per 5 seconds, allowing response time. Each list was recorded 8 times to permit repetition for the anticipation method of learning. Slides were made of the 8 words for visual presentation, at the same rate as the auditory; and the same method of learning was used. The low sonic (LSA), neutral (NSA) and high sonic affect (HSA) words were randomly assigned within sets of 8. Following a practice session, subjects were given booklets in which to record responses. The 3 between-variables were sonic affect, schools, and sex. The within variable was 8 learning trials. The mixed factorial analysis for auditory presentation showed no main effects of sonic affect or sex but a main effect of school, with the ethno-eclectic school learning significandy faster than the predominantly white school. The main effects for the within variable showed the superiority of girls over boys in both schools over the 8 learning trials. For the visual presentation, the main effects of sonic affect and sex were not significant, but the school effect was reversed: the predominantly white class learned faster than the ethno-eclectic. In addition, boys of both schools learned pleasant and neutral sounding words faster while girls learned unpleasant ones faster. While all subjects learned over trials, they learned pleasant and neutral sounding words faster than unpleasant. Some effects may have been due to the quality of the tapes.

Lyle and Goyen (238) studied the learning of retarded versus normal readers on visual-auditory tasks, with reinforced and non-reinforced treatments. The subjects were 38 retarded readers, ages 7.0-8.5, reading at least 1.0-1.4 years below grade. An equal number of normal readers, matched for age and IQ, had reading ages at least

equal to life ages. The IQ was determined by the *Moray House Picture Test* 2, and reading age by the *Schonell Graded Word Reading Test*. Half of each group was assigned to each treatment: reinforced and non-reinforced. The learning materials were letter-like shapes paired with letter-like names, analogous to learning the alphabet. Six pairs of stimuli were prepared for the test; 2 additional pairs were used for practice. Each shape was presented individually while the experimenter named its auditory associate. Practice items had to have accurate responses in which the experimenter named the associate and the subject identified it. There were 10 learning trials, each followed by a test trial. In the non-reinforced treatment, the experimenter gave no reactions; in the reinforced treatment, the subject was told that he was right (if he was) and given a half-penny. At the end of the test trial, subjects were told their scores and urged to try for a higher score on the next trial. The number of correct responses per trial was analyzed in a Groups × Treatments × Trials analysis of variance. The difference between normal and retarded readers was significant (.05), with the latter group surpassing normals in the non-reinforced treatment; but no difference was found on the reinforced treatment. Overall Treatments effects were not significant, but Tukey's HSD test showed normals superior to retardates (.05) on the reinforced treatment. The Trials effect was significant, showing that both groups learned across 10 trials but neither Groups nor Treatments interacted with Trials. There was no evidence that retarded readers had any difficulty in a grapheme-phoneme type association task where the shapes were not readily confusable. Reinforcement, however, produced less learning.

Wulf (421) tested the hypothesis that reading meaningful related materials would facilitate learning and retention of a lesson, and even greater amounts when the related materials were read twice. Two passages of about 1,300 words were judged, on the basis of content analysis, to contain highly similar and conflicting information. A third passage, completely unrelated, was used as control material. Twenty questions on the main selection, Glaciers, included 5 for which the same information was given in the proactive passage. Since 4 sessions were required, only 99 of the 150 subjects originally assigned to the 3 groups completed the experiment and were included. At the first session the Overlearning-Proactive (O-P) group read the proactive selection while the other 2 groups read irrelevant passages. At the second session the O-P group read the proactive selection again, the Proactive (P) group read it for the first time, and

the Control (C) group read an irrelevant selection. At the third session, all 3 groups read the article on glaciers and took the 20-item test immediately thereafter. One week later, only the test was given, plus a questionnaire about the relevance and appropriateness of the selections. Analysis of variance for the number of correct items on the first test, immediate recall, showed non-significant differences between groups. Likewise, the F for the delayed recall for the 3 groups was not significant. Even the analyses of covariance with IQ, from the *California Short-Form Test of Mental Maturity*, as a covariate yielded non-significant F's. Separate analyses for the 5 test items containing common concepts showed no significant group differences. On the questionnaire, most of the O-P and P subjects saw similarities between the 2 proactive passages and the test passage, but about half of those reading the irrelevant passage reported similarities also.

Klemt and Anderson (206) compared noun-pair learning with and without sentence elaboration on pairs. All combinations of high and low frequency of usage were used on the stimulus and response sides. Materials included 40 words from the A or AA categories and 40 from the 1 to 10 in a million frequency. The words were randomly paired by frequency as follows: 10 high stimulus and high response, 10 high stimulus and low response, 10 low stimulus and high response, and 10 low stimulus and low response. A sensible sentence incorporated the stimulus as the subject and the response term as the object. Subjects received 4 study-test trials on either the sentences or unelaborated noun pairs under 4 randomized orders. High-frequency response terms across the 4 trials produced a higher correct mean (63.9 per cent) than did low-frequency (45.9 per cent). There was a main effect for trials but none for either sentence elaboration nor stimulus frequency. The Stimulus Frequency × Trials interaction was significant (.01), with high-frequency stimuli producing increasingly higher per cent of correct responses over trials.

Lane, Evans, and Lane (217) investigated the applicability of the Schematic Concept Formation Task (SCFT) to reading performance among "good" and "poor" readers enrolled in a College Developmental Reading Program. The *Diagnostic Reading Test* was used to separate the groups. The poor reader group included 8 subjects whose comprehension was less than 30 per cent at a speed of 250 words per minute, while the good reader group included 8 subjects who scored higher than 80 per cent comprehension at the same rate. To obtain an overall score of improvement, each subject's

comprehension score was multiplied by speed and divided by 1,000. The mean reading performance, using filmstrips presented on the Controlled Reader, was computed across 19 trials. Analysis of variance produced no significant differences between the gains of the 2 groups, but the *Wilcoxen Sign Test* showed the good readers significantly (.01) better than the poor readers on 17 of the 19 trials. The SCFT mean scores for each group across 4 presentations were calculated, and analysis of variance showed that the good readers scored significantly (.01) higher than the poor readers.

IV-6 Visual perception and reading

Dubois and Brown (86) assessed the ability of the *Frostig Developmental Test of Visual Perception* to measure abilities of first graders related to reading but not already measured by an intelligence test. The 163 subjects were all first graders in 10 classrooms except absentees, those whose parents would not permit testing or average pupils. The subjects had received 8 months of instruction. They were given the *Frostig and the Gates-MacGinitie Reading Survey Tests* in groups. The *Slosson Intelligence Test for Children*, a verbal test, was given individually. The Frostig subtests and the Gates subtests were intercorrelated. Figure-ground, Form Constancy, and Spatial Relations subtests of the Frostig correlated significantly with the Vocabulary subtest of the Gates. Also, the Figure-ground and Form Constancy subtests of the Frostig correlated significantly with Comprehension on the Gates. All coefficients were at or below .38. Then partial coefficients were calculated with the Slosson partialed out. Only the Figure-ground subtest correlated significantly ($r = .19$) with the Comprehension subtest at .01. Besides the Figure-ground subtest accounted for only 4 per cent of the variance of the Comprehension subtest. Multiple correlations showed that adding the Frostig subtests to the Slosson did not significantly improve the prediction on either subtest of the Gates. The conclusion was reached that the Frostig tests appeared to measure no specific abilities related to reading achievement other than those measured by the Slosson.

Krausen (210) sought to determine the relationship of visual perception to language and general ability among nursery school children. These subjects attended one of 4 state nursery schools and ranged in age from 3.4 to 5.3 years. The following tests were given individually: The *Visual-Motor Integration Test* (form copying); the *Frostig Developmental Test of Visual Perception*—Eye-Motor subtest; The *Form Discrimination Test;* The *Visual Sequencing Test;*

The *English Picture Vocabulary Test* (similar to the Peabody); and *The Illinois Test of Psycholinguistic Ability*—subtests, Visual Closure Test, Auditory Association, Grammatic Closure, and Auditory Sequential Memory. A principal components factor analysis of the intercorrelation matrix yielded 2 factors. Factor I was called "general ability" because all tests had high loadings on it, although the language tests loaded highest. Factor II was bi-polar, having plus and minus values, with one visual perceptual test having highest positive loadings. Rotation drew the distinction between language and perceptual factors. But the highest loadings on Factor II appeared on tests that could be answered without speech. Two language tests with this type of answer appeared in Factor II. A factor analysis for each of 3 age groups (3.4-3.11; 4.0-4.7; 4.8-5.3) yielded 3 factors for each age range. The general factor accounted for more of the common variance with increasing age. Comparisons among 3 social groups showed that only Auditory Association and Grammatic Closure gave significant differences. None of the perceptual tests differed with social groups. Only the Visual Closure test showed a consistent decrease in scores with lower social class but all language tests showed this trend. The conclusion was reached that visual perception, considered essential for reading, was closely related to language development in pre-school years.

Church (58) investigated the relative effects of the Frostig workbook, Beginning Pictures and Patterns, with an informal program on visual perception reading readiness, and subsequent reading achievement. The subjects were 4 kindergarten groups, 61 to 74 months of age, taught by 2 teachers in a crossover design. Each teacher used one method in the morning and the other in the afternoon. The Frostig workbook was followed closely. The informal program included activities to promote visual-motor coordination (*i.e.*, a magnet toy to follow a line), figure-ground perception (*i.e.*, pictures to arrange in sequence), perceptual constancy (*i.e.*, sets of buttons and felt cut-outs of varying size and shape), and position in space (*e.g.*, sets of blocks to copy designs). When children finished the workbook in mid-April, all subjects took the *Frostig Developmental Test of Visual Perception*, which had also been given in November before the experiment began. Teachers gave the *Metropolitan Readiness Tests* to all subjects. Near the end of first grade, the *Scott, Foresman Basic Reading Tests* were given to all subjects remaining in the school system. Analysis of covariance showed that both groups made significant gains on the Frostig tests, but there was no significant

difference in the 2 groups on this test or the Metropolitan. By the end of first grade, the informal group surpassed the Frostig group in reading achievement but the difference was not significant.

Mason and Woodcock (246) investigated the responses of first grade pupils to a word-matching task to identify the cues that pupils use for matching words. Both classes were given a visual memory task designed especially to determine the procedures used in remembering words. Thirty task items included the correct item among 8 foils. Some foils included letter sequences of the same configuration, while others had the same first and last letters. The target word was exposed for about one second, then children were asked to circle all words in a line that were just like the target word. They found that 48 pupils circled 136 words and letter combinations that matched the word *plow*, only 24 of which were correct. Analysis of types of errors revealed that in 29 comparisons, subjects selected 16 on some basis other than configuration. Analysis of the proportion of errors involving a different first letter revealed a strong tendency to rely on similarity of first letters as a mnemonic device for visual memory.

Robinson and Schwartz (319) examined the relationship between visual-motor perceptual problems and reading achievement in the primary school years. Subjects were 142 five and six year olds about to enter grade 1. The tests used were the *Hooper Visual-Organization Test;* an unpublished test, the *Closure Test;* the *Bender Gestalt Test;* and the *Stanford-Binet Intelligence Test.* On the basis of the visual perceptual battery, 41 subjects were identified as "high risk" (sometimes called perceptuo-motor handicapped). Of this group, 15 were deficient in visual perception, 12 in visuo-motor, and 14 in both areas. A control group of 23 was randomly selected from the remainder who had no perceptual test problems. The *t*-test showed no significant difference between the groups on the Stanford-Binet. No description of instruction is given but intensive testing occurred at the end of grade 3. The Hooper, Closure, and Bender tests were repeated. The *Frostig Developmental Test of Visual Perception* and the *Purdue Survey Tests* (for body image, etc.) were administered. A pediatrician used Ozer's scale of neurological maturity. An electroencephalograph (EEG) was made. The *Wechsler Intelligence Scale for Children* (WISC) was administered. Reading level was measured at the end of grade 1 and again at grade 3 by the Schonell Word Recognition Scale from which a reading quotient (R.Q.) was calculated. The *t*-test showed significant

superiority of the control group over the high-risk group on the Hooper, Closure, Bender, Frostig, and Purdue tests. Also, the control group had a higher score on the total motor sections of the Ozer scale but on no others. One questionable EEG was found for each group. The mean WISC, Verbal, Performance, and Full Scale IQ's were significantly higher for the control group. However the R.Q.'s of the 2 groups were not significantly different. At grade 3, nine subjects from the high-risk group had R.Q.'s below 100; one from the control group was below 100. A comparison of these 10 children whose R.Q.'s were below 100 with the remaining 54 was made on all tests. No significant differences were found except on the Verbal and Full Scale IQ's of the WISC; the control group surpassed the high-risk group. Separate examination of the Frostig scores showed that 31 subjects had perceptual quotients of 90 or less but that only 5 were poor readers at the end of grade 3. The conclusion was reached that a delay in visual or motor development alone cannot account for reading retardation at third grade, and that reading difficulty must result from a number of deficiencies.

Du Bois (85) investigated, simultaneously, some relationships between types of visual skills, verbal-based tests of intelligence, and reading achievement. Subjects were 30 randomly selected boys and girls in each of grades 2 and 4, described as coming from a "typical middle-class locality." The tests included *Frostig's Developmental Test of Visual Perception*, a modification of the Bender Gestalt, *Birch and Belmont's Auditory Visual Integration Test*, the *Gates-MacGinitie Reading Survey Test*, the *Peabody Picture Vocabulary Test*, and the Vocabulary subtest of the *Stanford Binet Intelligence Test*. Coefficients of correlation were not significant at .01 between the Gates test and the Auditory-Visual, Visual-Auditory, or Bender at either grade level. A total of 15 significant coefficients, mostly between the Frostig Perceptual Quotients and the Gates were found at both grade levels. However, with partial correlations, controlling the Peabody and Binet Vocabulary, none of the foregoing coefficients remained significant. The conclusion was suggested that the relationships between the Frostig and Gates tests were spurious since verbal abilities accounted for the correlations.

Whisler (412) devised and administered visual memory exercises to determine the effect on visual discrimination and reading progress of first graders. Six classes, 152 children, were chosen in some undefined manner as experimental groups who received 15 minutes of daily visual memory training for 15 weeks. This training

was in addition to the "basal reading program" used by the experimental and 6 other classes called controls. The visual memory exercises made use of letters and words which pupils normally encounter. They appeared with similar distractors for discrimination, then for 2- through 5-letter words, then to root words, endings, compounds and phrases. There were 12 different tasks in the 75 lessons. All unnamed post tests were reported to show greater gains in visual discrimination and total reading achievement for the trained groups, although no supporting data were presented. The report states that the greatest value was in Word Reading with little value in Paragraph Reading.

Samuels and Anderson (341) sought to determine the relationship between visual recognition memory (VRM), learning easy and difficult paired-associates, and reading achievement. Three groups of second graders were selected by random sampling, stratified by IQ based on the *California Test of Mental Maturity*. Mean IQ's were 98.2, 108, and 118.0 for the 3 groups. Each of the subjects had been given the *California Achievement Tests* (CAT), of which the Vocabulary and Comprehension subtests yielded grade scores. The entire group was split into good and poor readers by teacher's assignments such that the mean differences on the CAT were significant (.01). Eight subjects left the school, so data were available on 56. Three experimental tasks involved a test of VRM and 2 tests of paired-associate learning. The VRM task included a series of Gibson letterlike forms with standards and their transformations. Training consisted of 6 trials composed of a "learning trial," presenting the 6 standards, and a "test trial" in which subjects indicated whether they had ever seen a form (shown with transformation) before. On each trial the same standard with different transformations was used. The easy paired-associate task used colors as stimuli and the 5 vowels as responses. Ten trials were given with randomized order of presentation. The difficult paired-associate task used 4 Gibson figures, consisting of a standard and 3 of its transformations, and responses were CVC common words. Criterion was reached after 3 consecutive correct trials or 20 trials in all. A 2 × 3 factorial design was used in which IQ and VRM were the independent variables and the difficult paired-associate task was the dependent variable. Scores from the CAT were used for correlational analysis. Intercorrelations showed that IQ and VRM correlated only .12 and can be considered independent measures. Also, VRM correlated higher (.43) with the difficult than with the easy learning task (.26). In the former both visual discrimination and perceptual learn-

ing played important roles. Partial correlation, holding IQ constant, reduced the correlation between VRM and the easy task but not the difficult learning task (.42). VRM was significantly correlated with CRT:Vocabulary (.28) and Total Reading (.29). To determine if superior VRM did better than those with inferior VRM on the paired-associate task, analysis of variance was done with IQ blocked at 3 levels. The main effect of visual memory on the difficult paired-associate learning was significant, with high scores on VRM corresponding to higher rates of learning. There was no difference in paired-associate learning associated with IQ nor was the interaction of IQ and visual memory significant. Good and poor readers were compared on all measures and differed significantly on each, with means favoring good readers. Errors were analyzed, and while poor readers made significantly (.02) more errors in recognizing transformations of standards in learning, proportionately, they made the same types of errors. Neither left-right nor up-down transformation errors predominated among poor readers. The conclusion was reached that the problems of poor readers were not reversals but visual discrimination memory, and their performance on learning the difficult paired-associate task suggests that this deficit can be improved through proper instruction.

Goldberg and Guthrie (124) explored visual memory, visual sequencing, and visual perception among normal and poor readers. The mean age of normals was 8.55 years; the age of poor readers was not reported. Both groups received the *Wechsler Intelligence Test for Children* (WISC) on which the mean for normals was 98.27 but the mean of the poor readers was not reported. All poor readers read 2 or more years behind life age. The *Gray Oral Reading Test* was given to all subjects, the *Metropolitan Reading Achievement Tests* were used for poor readers and the *Wide Range Achievement Tests* (WRAT) given to 48 of the normals. The mean WRAT was grade 2.17. The following tests were given: 1) Visual Sequencing—*Knox Cube Test* and the Visual Sequential Memory subtest of the *Illinois Test of Psycholinguistic Abilities* (ITPA); 2) Visual Perception—ITPA, Figure Identification subtest; 3) Visual Memory—*Benton Visual Memory Test*; 4) Visual-Motor Tests—Bender-Gestalt Test. Each score on the visual battery was correlated with the reading tests for normal and poor readers separately. Coefficients for normals involving the Gray Test were Visual Sequencing, .47; Benton, .51; and Knox Cube, .34. Corresponding coefficients for poor readers were .15 and .32, with the third not given. Partial correlation, with life age held constant,

revealed that for normal readers, the Benton and ITPA Memory correlated .28 and .35 with the Gray Oral, while the Knox Cube was only .11. Likewise, the Benton correlated significantly with the WRAT (.47) and also the Knox Cube with the WRAT (.23). The Benton test was the only one that correlated significantly with reading, Metropolitan—Reading Comprehension, .47. Since it is suggested that most of these tests be given by a trained person, the authors then searched for an "easy and rapid method of studying visual perception." A second study was based on the Perceptual Forms Test, which is composed of copying 9 geometric forms. An adaptation of this test, with all forms on 2 pages, was used; and the scoring involved only the final copy so that scores on each figure could range from 0 to 12. Using 157 children, about 7 years old, mean IQ of 91.8 on the WISC and WRAT grade level of 1.64, the 54 were selected who had the 8-year battery of tests. Each of the figures correlated significantly with the total drawing score, while all but the circle, cross, and square correlated significantly with the reading scores. The drawing score correlated .41 with the IQ on the WISC. This test was recommended for office screening by ophthalmologists or pediatricians.

Stanley and Hall (371) explored differences between dyslexic and normal children in the early stages of visual information processing. The subjects came from 4 primary schools in the Melbourne area, each of which had a remedial reading teacher. The 33 dyslexics were 2.5 years below "normal" in reading but performed average or better in other academic subjects, and had no gross behavioral or organic problems. The 33 controls were chosen by their class teachers as being average to bright students. They ranged in age from 8 to 12 years, with a mean of 10.52 compared to 10.88 for the dyslexic group. The apparatus consisted of a cathode ray oscilloscope (CRO) under the control of a computer. The CRO faded to one per cent relative brightness in 10 milliseconds (msec.) after intensification ceased. The stimuli were 2 letters, N and O, 2 halves of a cross, and a cross and square. One part of the stimulus was presented at 20 msec., followed at varying intervals (ISI) by the second half, also shown for 20 msec. The 2 parts were spatially adjacent or superimposed so that at brief ISI's they were perceived as a composite. Increments of ISI were made in 20 msec. steps until the subject reported the display as not being a composite, and then could identify the 2 parts on 3 consecutive presentations at that ISI. The analysis of variance of the separation time for the 2 groups of

subjects was significant (.01) while the tasks and the interaction were not significant. Likewise, the identification data separated the 2 groups (.01) with nonsignificant task and interaction times. In Experiment II, the same subjects were required to identify the letters of the alphabet. The stimuli were presented in 2 stages: a) one of the consonants H, J, R, M, K, F or C for 20 msec., followed by a mask of a static rectangular array of dots for 20 msec.; b) presentation of either *U* or *O* for 20 msec. followed by the same masker. The ISI between the stimulus and masker began at 20 msec. and increased in 20 msec. increments until a criterion of 3 correct responses was given. The mean ISI for normals on the consonants was 56 msec. compared to 64 msec. for the dyslexics. On the *U* and *O* masking task, the mean ISI for normals was 92 msec. compared to 122 msec. for the dyslexics. Both the group and the task F's were significant but not the interaction. The findings showed that the scan and retrieval processes required more time for dyslexics than for normals and suggested differences in the early stages of information processing.

Groenendaal and Bakker (132) compared the performance of above average (AA) and below average (BA) readers on meaningful and meaningless figures presented in temporal order at 2 age groups. Basic to the study was the assumption that good readers label meaningful figures and recall them better than poor readers because of mediation. The 30 seven year olds were given the *Pintner, Durost, Cunningham Test;* and the 10 year olds, the *Test voor Verstandelijke Ontwikkeling* for IQ; and both groups had the *Wiegersma* reading ability test. Using the norms of the reading test, subjects were divided into AA and BA groups. No significant difference in intelligence was found between the 2 AA and BA groups. A complicated learning procedure was used to divide the groups into mediators and non-mediators. Briefly, 8 wooden blocks differing in shape, color, and size were presented in pairs differing in 2 dimensions with 3 series of trials. In the first series 100 per cent reinforcement consisted of chips put under the positive stimuli. In series II, half the pairs in series I was used and the previously negative stimulus then became positive. Series III, using those stimuli not used in series II, was designed to show how subjects learned series II. Series III had 20 trials, 10 of which were test trials, responses to which disclosed the cue to which the subject responded. Subjects making reversal shifts were classified as mediators; the remainder were called non-mediators. The major experiment, temporal sequence, made use of 11 meaningful pictures of common objects and 11

meaningless pictures selected from wire-drawn figures by Woodworth and Schlosberg. Fifteen series were formed: 3 of 3 pictures, 5 of 4 pictures, 5 of 5 pictures, and 2 of 6 pictures. All pictures appeared several times in the series but never in the same sequence. Starting with the series of 3 pictures, exposure time was 2 seconds per picture with 2 seconds between pictures. Immediately after exposure, subjects received a response card with the same items in random sequence and the correct order of the items had to be indicated without naming the pictures. After 3 successive wrong answers the test was terminated. All subjects could name the meaningful figures. Results showed that all AA readers responded correctly to the meaningful figures better than BA readers, especially the 7 year olds. No significant differences were found in responses to the meaningless figures. Of the 30 younger subjects, 14 were mediators while 16 were non-mediators. In the older group, 18 were mediators, and 8 non-mediators. However, mediators and non-mediators were equally divided over the 2 groups. Only in the older BA group were there significantly (.025) more mediators. No differences in IQ were found between mediators and non-mediators. Mediators perceived and retained meaningful better than meaningless materials (.001), as did the younger non-mediators (.025) but not the older non-mediators. Moreover, mediators learned quicker than non-mediators in the first learning phase of the task but this may be attributed to IQ. Size-dimension produced more trials to criterion than color-dimension (.001).

McConkie and Rayner (256) studied the regions around the point of fixation from which the reader acquires useful information during a fixation in reading. The instrument used was an on-line computer with a cathode ray tube (CRT) which displays the text to be read and can be changed at rapid speeds. In addition, it has an input from an eye-tracking device to record eye movements, sampling eye position at 60 or more times per second. Although a great deal of data were collected in the 2 experiments, only the perceptual span is reported. In Experiment I, 500-word selections from a text were mutilated in planned ways: 1) substitute an X for each letter (X); 2) replace each letter with one visually confusable (C); 3) replace each letter with one not visually confusable (NC). Each substitution was used in 2 ways: 1) all spaces and punctuation marks were retained (S) and 2) spaces and punctuation marks were replaced by letters. Each version had a specific purpose, such as to maintain or eliminate word length, shape, or other salient features. The original and one mutilated version were stored in the computer. As the eye fixated, the

normal text could be seen through 8 *window* sizes ranging from 12 to 100 character positions, half on each side of the fixation point. Outside this window, the mutilated text, called background, appeared. Each fixation changed the ensuing text so it could be read normally. Each of 6 high school juniors and seniors, identified as the best in their schools, read 16 passages with background pattern changing from page to page, so that 2 pages under each of the 48 conditions were read. The results showed that reducing the window to 13 character positions increased fixations and reading time compared to 100 characters. Analyses of variance showed that the type of mutilation had primary effects on fixation duration; the S and F primarily affected saccade length. Both sets of variables affected regressions. The results suggested that readers picked up and used word space information as far as 13 or 14 characters beyond the point of fixation. Maintaining the word shape (C) facilitated reading compared to NC up to a window size of 21, suggesting that external shape was used about 10 characters beyond the fixation. In Experiment II, 10 undergraduates read 15 blocks of 15 short paragraphs. In each paragraph one word was designated as the critical word location (CWL). When the reader's eye reached a given location, the alternative was replaced by the original word. The alternatives were word identical (W-Ident); a word of same length with the same beginning and end letters and with a fit semantically and syntactically (W-SL); a non-word letter string (N); a non-word similar in both shape and extreme letters (N-SL); a non-word with same extreme letters but different shape (N-L); and a letter string of the same shape with different extreme letters (N-S). All words and alternatives contained 5, 6, or 7 letters. The second variable was the location of the boundary which triggered the word changes. The authors found significantly longer fixation durations on all N's than on W's, as well as at 3 or 4 character positions at the left of CWL. When fixations were more than 12 character positions to the left of CWL prior to display, durations on CWL were almost identical for all conditions. Within this area, differences between W-Ident and SL were especially noted when either word shape or extreme letters were changed. W-SL and N-SL differed only about 6 letter positions from CWL. Thus the conclusion that information about words is obtained beginning 10-12 character positions before the CWL, but that actual identification of words comes 4-6 positions before CWL.

Raygor (312) investigated the letter, the word, and the phrase as perceptual units under 2 conditions of presentation: 1) same position (Unextended); and 2) left-to-right across the screen

(Extended). The stimuli were made up of Para-Type rub-on pressure lettering, 18 pt. type size, and photographs which were exposed in one of 6 ways to 6 subjects—a total of 36. After a practice unit of one sentence, 2 experimental sentences were used. Presentation time for a whole sentence using letters was approximately 3.2 seconds; using words, 1.3; and using phrases, .5 second. The score was the total number of words the subject could write correctly after exposure. Analysis of variance showed significant differences in all but comparisons of Words Unextended and Phrases Unextended. Sentences presented a letter at a time were more difficult to read than those presented a word or a phrase at a time. Sentences presented a word at a time were easier to read than if presented a letter or a phrase at a time except for Unextended sentences in which a word was not significantly easier than a phrase. Except for letters, sentences presented left-to-right across the screen were more difficult to read than those presented in the center.

Rumelhart and Siple (333) formulated a multicomponent model for the recognition of words presented tachistoscopically, then using 726 three-letter strings with 5 adult subjects, tested their predictions based on the model. The purpose of the model was to determine how the "sensory" and the "internally produced" information are combined. The sophisticated guessing model or "fragment theory" as Neisser called it, suggests that only a few fragments of a word are perceived and that guesses are weighted according to the *a priori* expectations of the remaining possibilities. The criterion bias or "signal detectability" model suggests that subjects have K decision axes, one for each of the K possible words to be presented. The multicomponent theory embraces both of the foregoing theories. In this study, the functional features of the letters were reduced to 14 line segments by using capital letters and a given type font. The activation assumptions and the decision assumptions have been reduced to equations. In this experiment, 3 letters were combined into 726 strings. To predict the entire distribution of responses, it was necessary to specify the sensory parameter, the decision criterion, and the subject's expectancies. *A priori* expectations are that the string will be understood as a word, as a syllable, or as a random letter string. For that reason, the 726 stimuli were analyzed into 510 words and 216 non-words. The probability that the 726 stimuli would fall into each of 30 categories was determined by the combined word and syllable frequencies. In this experiment, a total of 3,630 responses were made, 1,818 of which were incorrect. Analyses of these

errors were made with respect to their word and syllable frequency in the English language. While 57 per cent of the error responses were syllables, only 12 per cent of the presented strings were syllables. Also, about 26 per cent of the errors were words; 70 per cent of the presented strings were words. The conclusion was reached that error responses were less like syllables and words than the set of stimuli but more like them than random responses. Analysis of correct responses was done by classifying each of the 726 stimuli into 27 different classes according to frequency of occurrence of the strings, letter to letter probability, and the confusability of each letter in the strings, as determined by previous investigations. Then the correct responses of the subjects were tabulated in a similar manner, with high, medium, and low string frequency. A chi-square test revealed that string frequency and letter confusability were independent. Plots of the subjects' responses against the predicted responses showed a small (10 per cent) effect of string frequency, letter predictability, and a larger (20 per cent) effect of the confusability of letters. The theoretical analysis which involved both *a priori* expectations and sensory evaluations were answered with some assumptions. The assumed logarithmic relationship between word and syllable frequency and subjective probabilities of words and syllables were P(words), .12; P(syllables), .407; and P(letter), .473. The sensory evaluations would require an impossible computer simulation, so the 8 "corner" cells (with either high or low values on each of 3 factors) were simulated in 40 trials per stimulus. The parameters were varied until a "good" fit was found for these cells and were accepted as the correct ones. The data from the subjects were then compared with the simulated curves. Of the 36 points, 21 times the simulated and observed data were within one standard deviation of agreement and only once was the difference as much as 2 standard deviations. Detailed analyses of the findings, compared to previous studies, led the investigators to conclude that both the physical characteristics of the words and the psychological processes can be predicted, within limits, in the recognition of 3-letter words, and opens avenues for further research.

One study dealt with the problem of visual imagery, particularly as it applies to the learning of prose passages. Levin and Divine-Hawkins (224) explored differences between processing visual-imaginal and verbal-auditory information in 2 experiments. In the first, 2 concrete 10-sentence passages were generated. Attributes of 2 subclasses (monkeys and cars) were contrasted in each passage.

The attributes of one subclass were presented in the first 5 sentences; and of the other, in the last 5. Each sentence was typed on a separate card. Questions were generated on the subclass attributes, and 2 questions dealt with the major defining attributes. Half of the 48 subjects read the passages and half listened to them (mode). Within each mode, half were instructed to read or listen to answer questions while the other half were instructed "to get pictures in their minds" of the happenings of the passage (instructions). Subjects were blocked according to reading level, then randomly assigned to each of the 4 conditions. A practice sentence and a question were provided. Each subject was allowed to take all the time he wished to read but was not allowed to look back. A tape-recorded version was used for listening. All subjects responded orally to 10 questions read by the experimenter. All subjects were good or average readers at grade 4, as determined by the reading subtest of the *Stanford Achievement Tests*, teacher's evaluations, and reading-group placements. A "blind" scoring procedure was used. An analysis of variance of the number of correct responses (out of 10) revealed that both the Instructions main effect, and Instructions × Mode were statistically significant. Imagery instructions resulted in higher scores for listeners than for readers. No effects of reading ability appeared. The experimenters assumed that the results were due to competing and antagonistic responses from visually processing print and visually imagining, which did not occur while listening because different systems were used. But since subjects could take time to read and then imagine the content, the conflict was minimized in some cases. Hence, in Experiment II, the times for reading and listening were controlled. With slight modification, the same passages were used as previously; but sentences were exposed by a slide projector under 2 times: 7 seconds (slow rate), and 3½ seconds (fast rate). Likewise, the same 2 rates were used for listening. Subjects were 112 pupils in fifth grade. After the experiments subjects were asked to rate the extent to which they generated visual imagery on a 4-point scale. The instructions and modes factors were nested within rates. Recall was better (.01) at the slower rate than at the faster rate and listening was superior (.01) to reading but not within the slow rate. Instructions effects were not significant but Instructions × Presentation Mode was significant at the slower rate. The expectation that this interaction would be smaller at the slow than at the fast rate was not confirmed. The subjects' reports of imagery were of particular interest. First, more imagery was reported at the slow than the fast

rates (.05). At the fast rate much more imagery was reported in listening than in reading (.01) *regardless* of the instructions given. Of the 50 "most frequent" imagery reporters, 20 came from non-imagery instructed conditions. This raises questions about the results of the experiments.

IV-7 Auditory perception and reading

A new test of auditory discrimination was examined by Finkenbinder (106) to determine its reliability, its prediction ability for reading achievement, and its relationship to other variables. The *Goldman-Fristoe-Woodcock Test of Auditory Discrimination* (GFW) was given at kindergarten along with the *Metropolitan Readiness Tests*, and at grades 1 through 3, along with the *Gates-MacGinitie Reading Test* appropriate for each level and the *Wide Range Achievement Tests* (WRAT). All were given in January, and the WRAT and GFW were repeated in May. At each grade, 60 subjects were randomly selected from about 200 in 2 elementary schools. Both the WRAT and GFW were given individually. An ambient noise level in each testing room ranged from 30 to 50 decibels. Subjects suspected of hearing problems were evaluated by the Maico Puretone Audiometer. Two subtests of the GFW each with 30 items, are Quiet and Noise (background of cafeteria sounds). The mean Noise subtest scores were consistently lower than the mean Quiet scores. An analysis of variance on the Quiet scores showed significant differences between grade levels. However, *Scheffe's Multiple Comparison Test* showed significant progression of mean scores from kindergarten through grade 2 but grade 3 subjects scored lower then grade 2 subjects. Similar results were found with the Noise subtest, except that the comment was made that it was too difficult for kindergartners. The GFW was given again in May to 49 children randomly selected from the original group. Significant improvement was noted on the Quiet subtest (.05) and on the Noise (.01). Test-retest reliabilities for this group were .62 for Quiet and .42 for Noise sections. The Kuder-Richardson KR-20 was used to measure internal consistency. The Noise subtest yielded no substantial reliabilities (.22 to .41) while the only high coefficient was on the Quiet subtest at grade 3 (.86). Intercorrelation of the GFW with life age, mental age, readiness and WRAT at both dates ranged from .40-.42 for the Quiet and .08 to .39 for the Noise. Separate coefficients with Comprehension and Vocabulary subtests were even lower (.15 to .25). A multiple stepwise regression, using the 2 subtests of the Gates and GFW in

January to predict the WRAT scores in May showed that the GFW made no contribution to the prediction. The conclusion was reached that the GFW could not be used with confidence below grade 3 but that it might identify children with errors in auditory discrimination above that level.

Nober (278) investigated the effects of the noise of a classroom, compared to the quiet of a testing room, on children's performance on the Wepman Auditory Discrimination Test. She used 3 groups of 13 subjects each: normal, speech defective, and retarded in reading. The subjects were selected at random, after consultation with teachers and specialists. All attended kindergarten through grade 2. Sound level measurements were taken with the Bruel and Kjaer meter in conjunction with a random incidence corrector. The overall mean sound level for 4 classrooms in 4 schools on 2 days was 64.7 dBA. In the same 4 schools, the overall mean sound level in the special teachers' rooms was 39.5 dBA. The classroom noise levels were sampled and tape recorded and used in the special teacher's room as an accurate replication of typical classroom noise. Each subject first had an audiometric screening test. One form of the Wepman test was given in the quiet condition and the other form in classroom noise. Random order of test form and listening condition was used. Two scores were obtained on the Wepman Test: the absolute numerical raw score, and the adjusted pass-fail score. The overall mean error in quiet was 4.25 and 6.74 in noise. An F-ratio of the within subjects was significant (.01), showing that the subjects performed better in quiet than in noise. Similar results were obtained for the pass-fail scores. In order to determine the differences in subgroups, 3 *t*-tests were computed using errors. The values for the normal and retarded readers were significant but not for the speech group. Chi square was used to determine significance of mean differences in pass-fail scores. Only the difference in means for the retarded readers was significant (.01). The study showed that especially retarded readers, but to some extent all pupils, perform less well in auditory discrimination in classroom noise than may be indicated by the test given in a quiet room.

Huddleston (168) investigated the possibility of screening first graders, not only for auditory sensitivity, but also for auditory discrimination, and of determining reading progress during the year for inadequate compared to adequate discriminators. The subjects were all from 3 first grade classes in one school. Of the 77, some had vision or hearing problems or left the school. The 73 remaining were

given the Maico pure-tone audiometric screening tests in December and any pupil not responding at 15 decibels at any frequency in either ear was eliminated, leaving 60 subjects. The *Boston University Speech Sound Discrimination Test* (BUSSDT), recorded on a tape recorder, used with 0.42 acoustical earphones, was the critical test. Fifty-three subjects passed and 7 failed (3 females, 4 males). Controls for each of the 7 were matched on the basis of age, sex, passing both auditory tests, and being in the same classroom as the experimental subjects. In the spring, the *Peabody Picture Vocabulary Test* (PPVT) was given to both groups of subjects. In May the classroom teachers gave the *California Reading Tests* to all classes. The Diagnostic Profile Sheets were released to the investigator. The 2 groups did not differ significantly on the PPVT but did differ (.01) on the BUSSDT with the control group mean score being 69.00 and the experimental group mean 57.57. The mean reading achievement grade of the control group was 2.62 and of the experimental group, 1.82, at the end of the year. These differences were significant (.01). Even though the groups were small, the study showed that both audiometric and auditory discrimination screening tests could be given and that failure on the latter placed the pupil in a high risk position in terms of learning to read.

Risko (318) presented criticisms of existing tests of auditory discrimination, then developed a new test and used it with 81 pupils to determine relationship to reading achievement. The test was composed of 16 subtests. The first step was to group one-syllable words according to the phonetic categories: plosives, fricatives, affricatives, nasals, and glides. Then 2 or 3 words from each category were randomly selected to measure the 16 skills, such as initial and final consonants and consonant blends, vowels, and finally minimal pairs of word differences. The other phonemes of each word pair were not matched. During the first semester of the school year, this new test of auditory discrimination was given to all pupils in the first 3 grades of one school, using a tape recorder. At the end of the year, the Reading subtests of the *Metropolitan Achievement Tests* (MAT) were administered. Coefficients of correlation were calculated between each of the 16 subtests of the auditory discrimination and the MAT score. The rank order of statistically significant coefficients with reading were 1) Single final consonant sounds when 3 words were presented in serial order (.68), 2) Final consonant blend and digraph sounds when 2 vowels were presented (.58), 3) Vowel combinations (.56), 4) Final consonant blend and digraph sounds when 3 words were

presented in serial order (.55), 5) Initial consonant blend and digraph sounds when 3 words were presented in serial order (.55), and 6) Short vowel sounds (.51). The discrimination of minimal pairs of words, used in most tests, correlated with reading at grades 1, 2, and 3 respectively: .36, .15, and .36. None of these coefficients were significant. However, it should be noted that only one subtest, number 2 above, correlated significantly at all 3 grade levels. Different patterns appeared at each grade level.

Oakland, Williams, and Harmer (280) explored the possibility that auditory discrimination abilities of disadvantaged black children could be improved and that a way could be found to teach them to read effectively. The subjects were among 190 children in a black school who had a) entered first grade for the first time, b) passed 8 of 10 items showing knowledge of same and different, and c) demonstrated at least 20 decibels of auditory acuity at frequencies from 500 to 4,000 on the Beltone Audiometer. The Pictorial Similarities and Differences II subtest of the *Stanford-Binet Scale* was used for (b) above. Two tests of auditory discrimination were used: 1) *The Wepman Auditory Discrimination Test* and 2) Beginning Sounds and Ending Sounds Language Perception subtests of the *SRA Achievement Series*, Reading 1-2. In the spring, at the end of the experiment, 3 reading measures were the *Metropolitan Achievement Tests* (MAT); the *Gilmore Oral Reading Test;* and an 8-point rating scale done by teachers determining independent reading levels. The MAT was given in the fall and spring of second and third grades. Of the 64 subjects showing greatest difficulty in auditory discrimination on the Wepman, 8 were assigned to each of 4 experimental (E) groups and 32 to the control (C) group. There were no significant differences between E and C groups on life age, pretests of auditory perception, Metropolitan Readiness Tests, or the Columbia Mental Maturity Scale. All E groups had 45 minutes of supplementary instruction daily from October to May. Teacher assignments to the 4 E groups were rotated. The E_1 group had a phonics approach, using Phonetic Keys to Reading, and auditory-perception activities. The E_2 group had a visual-linguistic approach with the SRA Basic Reading Series plus auditory-perception activities. The E_3 group had only instruction by the phonics approach, while E_4 had only the visual-linguistic method, all in addition to classroom instruction. The auditory-perception activities, described in detail, aimed to develop auditory attention, memory, and discrimination related specifically to classroom activities. Analysis of variance and Ducan's

New Multiple Range Test were used to determine significance of differences among groups. First, groups E_1 and E_2 were combined because they had auditory-perception training, to compare with groups E_3, E_4, and C, which had no such training. Differences among the groups on the Wepman test were not significant. However, on 3 of the 6 SRA subtests, differences were significant. These 3 subtests dealt with beginning pairs that were different or the same. Moreover, there were no significant differences in reading achievement on 5 subsequent administrations of the MAT. Nor were there significant differences on the Gilmore or Eight-Point Rating Scale. The conclusion reached was that supplementary training in auditory-perceptual activities had only minimal effects on the perception tests and no effects on reading progress. Second, groups E_1 and E_3 were combined to compare those who had phonics (P) instruction to groups E_2 and E_4 combined who had the visual-linguistic (VL) instruction and the C group. No significant group differences were found in reading measures at the end of the experiment but subsequent administrations of the MAT showed that whenever differences appeared, they tended to favor the VL group. A figure showed the grade scores of each of the 5 groups. Reading progress was fairly linear for all E groups, but there was some deceleration for the C group. The relative superiority of the VL groups over the P groups increased over the 3 years. From this analysis, it appeared that VL instruction plus auditory-perceptual activities was the most effective procedure for this group of children.

Strag and Richmond (377) investigated the relative effect of 2 instructional methods designed to facilitate auditory discrimination. The first method, called behavior-modification experiences, began with easy discrimination tasks and increased in difficulty gradually, in 3 phases. Phase 1 used a single letter sound, Phase 2 used bigrams, and Phase 3, trigrams. Moreover, children using this procedure were rewarded with candy for criterion performance. The second method exposed subjects to social models and observational learning experiences. No emphasis was placed on phonetic elements nor their sequential placement in words. Intangible social rewards followed completion of informal tasks. To compare these 2 instructional methods, subjects for the study were selected from all first and second grade classes in an elementary school of culturally deprived children. Of 161 pupils, all failing a hearing screening test were excluded. The remainder was given the *Wepman Auditory Discrimination Test*. Those who failed on 20 items or had fewer than 6 right were excluded. Of the remaining 100 subjects, 24 boys and 24

girls were randomly selected, then randomly assigned to experimental and control groups. In addition, the *Peabody Picture Vocabulary Test* (PPVT) was used both before and after the instruction. The experiment included 9 meetings, 3 times a week for 3 weeks. Experimental groups 1 (E_1) and 2 (E_2) each consisted of 12 children, 6 boys assigned to one experimenter and 6 to another. Control group 1 (C_1), including 6 boys and 6 girls, was assigned to one male experimenter. Control group 2 (C_2), also 12 subjects, remained in the classroom except for pretesting and post testing. The E_1 group had the behavior-modification method of instruction. E_2 had the social models and observational learning experiences. C_1 group had supervised play. Games were organized to use minimal verbal contact. At the end of the experiment the Wepman test was repeated. Analysis of variance used differences between error scores and showed no significant differences between E_1 and E_2 nor between C_1 and C_2. Significant differences were found between E_1 and C_1 (.05) and E_1 and C_2 (.001). To compare E_1 and E_2 subgroups, the *t*-tests were calculated. No significant differences were found attributable to the experimenter variable. No significant changes were found on the PPVT scores. The conclusion reached was that instruction significantly improved auditory discrimination among culturally deprived children, and that perhaps some combination of conditioning techniques and social learning techniques might be even more efficient.

In a series of experiments, Read (313) began to probe the ways children categorize phonetic units and how these categories differ from those of adults. The first was a study of 4 vowel patterns differing in height and tenseness. The subjects were 32 six year olds, 24 seven year olds, and 19 university students. All spoke native English and had no gross auditory or articulatory disorders. Each subject was studied individually in a room facing 2 loudspeakers, equidistant from him. Each speaker had a Sesame Street hand puppet on it. Subjects were told that both puppets had made up a word and would say it together and the subject should repeat it. The "nonce" word was spoken twice. Next, subjects were told that each puppet was trying to think of a real word that sounded like the made-up word and that the subject should judge which one sounded most like the nonce word. The nonce word was repeated followed by a real word, and then by the other puppet, repeated and followed by another real word. All real and nonce words were CVC or CCVC. There were 4 types of vowel comparisons and 3 instances of each.

The 4 vowels were [i, I, e] and [E]. In each stimulus word, the vowels were compared with another similar in height but differing in tenseness, and another similar in tenseness but differing in height. There were 2 practice items at the beginning and 3 others at intervals, with a total of 17. The words were on tapes with order reversed on one. No child had difficulty repeating the stimulus word or responding. Analysis of the per cent of responses favoring height and tenseness by Chi Square revealed that the responses were not random but that young children can make choices of this type with patterns. Both the adults and 7 year olds chose words with the tenseness pattern predominantly, while 6 year olds chose tenseness where there was a high vowel and height when the nonce word contained a mid vowel. The change from ages 6 to 7 could be attributed to maturation or learning acquired in beginning reading. The third possibility, familiarity, was ruled out by correlating word frequency with its frequency of choice, because the Kendall's *r*'s were very low. A second study was made of the *tr* clusters. The procedure was the same as in the first study. An example of the nonce word was *troz*, and the choices were *toes* and *chose*. There were 6 items along with 8 practice items using other consonants. The 14 items were divided into halves and presented on consecutive days. One puppet was chosen consistently by 3 subjects; and 11 subjects predominantly chose /t/ or /č/. Among those 5 who chose /t/, 2 scored high on the *Metropolitan Reading Readiness Test* and a third had learned the *tr* spelling. The 6 who chose /č/ were generally in the middle range on the readiness test and none had learned the *tr* spelling. Overall, there was a slight, but insignificant, preference for /č/, 55 per cent. The class that used the Lippincott readers had been taught *tr*. Most of the /č/ choices came from a class using the Macmillan readers. After the test, each subject was asked to spell *trap*. Two-thirds gave the *tr* or *t* spelling; the remainder chose a variety of responses indicating frication. Of interest is that 4 of the 6 previously choosing the /č/ similarity, now spelled the word with /*tr*/ or /*t*/. This important finding suggests that pupils may know the spelling yet understand it as another sound. A study of the *tr* was made with 19 adults. Of the 13 who chose /t/, 8 chose it always. Overall, 62 choices were made for /t/ and 16 for /č/, a significant (.001) difference in the direction opposite to first-graders. However, 2 adults still chose /č/ predominantly. There was a negative relation between word frequency and first graders' choices of /č/. In order to compare maturation and spelling knowledge, the same procedure was repeated with 24 second graders at the end of January

when they had mastered the *tr* spelling. The results showed that the preference for the /č/ sound had not disappeared as there was an insignificant plurality of /č/ sounds, 72, over /t/, 69. Again there was a suggestion of an interaction between these judgments and reading readiness scores (Clymer-Barrett Test). When this group was asked, after the test, to spell *trap* or *trag*, all gave the *tr* spelling even though they had chosen the /č/ sound. In order to reduce the effect of spelling knowledge and investigate development, 32 kindergartners were tested on the *tr* choice in late March. The procedure was altered so that these younger children could carry out the test. Of the 32, 21 were able to complete the task. Fifteen subjects assigned *tr* to /t/ while 6 assigned it to /č/. Finally, 100 first graders in 4 classes were asked to spell 8 nonce words and 4 real words. Of these 6 had initial *tr*, 4 of which were nonce words. Of 600 spellings, 356 were correctly *tr*. An analysis of errors showed generally that one type reflected its place of articulation and the other, its affrication. This series of studies shows that it is possible to obtain phonetic judgments from young children and that numerous phonetic relationships must be investigated to know which ones are salient to children. This information is essential for teachers who may use the wrong examples to illustrate particular phoneme-grapheme relationships in teaching reading.

Cohen, Glass, & Singer (62) tested the hypotheses that environmental noise would impair auditory discrimination and, over time, create reading deficits. The subjects were 29 boys and 25 girls from grades 2 through 5 in one elementary school, who lived in four 32-story apartments on bridges spanning Interstate 95. The building limited tenants to "middle-income." The noise measurements were made with a General Radio sound-level meter. They were made outside each of the 4 buildings in 5 locations on successive days. Noise levels were recorded inside 3 buildings on the floor of each subject's apartment and inside about 45 per cent of their living rooms. The mean outside ambient levels were about 84 dBA, but inside, it varied from 55 dBA on the 32nd floor to 66 dBA on the 8th floor. The coefficient of correlation between floor level and ambient decibel levels was −.90. Therefore, floor level was used as a determiner of noise level. The *Wepman Auditory Discrimination Test* was given from a tape recording through earphones. The *Metropolitan Achievement Tests* (MAT) were given by the school. Two other tests were given experimentally: the *Stroop Word Test* (adapted) and a noise-making test. Due to distributions, these tests were not in-

cluded in data analysis. A questionnaire was prepared for pupils and parents. It asked about the length of residence in these buildings, number of siblings, education of the parents, and a rating of noisiness of their apartment. Length of residence was the first separation for groups: 1) 34 subjects who had lived there for 4 or more years and 2) 20 who had lived there 3 or less years. The correlation between floor level and auditory discrimination for the first group was .48, for the second group, −.06. In group 1, the coefficients of correlation between auditory discrimination and MAT subtests were Word Knowledge (WK), .55; Reading Comprehension (RC), .48; and reading total (RT), .53. In group 2, the respective coefficients were WK, .31; RC, .37; and RT, .34. This pattern showed that floor level was inversely related to auditory discrimination, while auditory discrimination was positively related to reading achievement, when subjects had lived in high noise level for several years. The next analysis divided the total sample into 4 length-of-residence subgroups; 6 or more years down to 0-1.9 years. Correlations between floor residence and auditory discrimination increased consistently from −.02 for less than 2 years to .41 for 4-5.9 years and .64 for 6 or more years. Duration of residence was related to impairment in auditory discrimination. Mother's educational level correlated .51 to .55 with reading subtests and floor level correlated .41 with mother's education. Hence, to eliminate this factor, partial correlation was calculated between floor level and auditory discrimination, with the effects of mother's, then father's educational level held constant. The resulting coefficients were .43 and .45 respectively. Also mother's, then father's, education was controlled in partial correlation between auditory discrimination and reading scores. Little difference was found between these coefficients and those without educational control. Floor level and reading scores were correlated with mother's education partialled out, and they were WK, .29; RC, .26; and RT, .31. With father's education partialled out, respective WK was .35; RC, .33; and RT, .37. The conclusion was reached from this analysis that reading deficits are, in part, mediated by noise impairments in auditory discrimination. Stepwise regression analysis on auditory discrimination showed the following per cent of variance accounted for by floor level, 19; father's education, 12; number of children in the family, 10; and grade level, 6. Stepwise regression analysis on total reading percentile scores showed these per cents of variance accounted for by mother's education, 25; auditory discrimination, 12; number of siblings, 6; father's education, 3; grade level, 1; and floor level, 0. The results are interpreted to show

that the effects of floor level on reading achievement was mediated by auditory discrimination.

IV-8 Reading and language abilities

The first 2 studies deal with analysis of the *Illinois Test of Psycholinguistic Abilities* (ITPA). The first, by Hare, Hammill, and Bartel (147) examined the construct validity of the ITPA to determine if the subtests were identifiable as separate traits or if they were consistent with Osgood's Model of Communication. Only 6 subtests were chosen for study; 4 were relatively pure modality (Auditory Reception, Visual Reception, Verbal Expression, and Manual Expression); and 2 were memory tests at the automatic level (Auditory Sequential Memory, and Visual Sequential Memory). A parallel task was designed to correspond to each of the subtests, differing in only one dimension (*i.e.*, a vocabulary test presented in both visual and auditory forms). In all, the tests were given to 126 third graders from 8 classes in 4 schools. Pupils were carefully checked to be certain that all included met the criteria established for standardization procedures. A principal components solution and an orthogonal rotation of the factor matrix was machine programmed. Seven factors with eigen values of 1.0 or more were found, and they accounted for 66 per cent of the variance. Since tests that measure more than one ability will load on more than one factor, the matrix was examined and found to meet this criterion. There was no evidence of a general language factor as had been true in some previous studies. Factor I, called graphic language, included reading and writing, and accounted for 20 per cent of the variance. Factor II, oral language comprehension, including representational receptive and auditory abilities, accounted for 12 per cent of the variance. Factor III oral language usage, involved ability to make verbal inferences about familiar objects and pictures. Age loaded heavily on this factor, which accounted for 9 per cent of the variance. Factor IV, visual sequential memory, included only the ITPA subtest of this factor and accounted for 7 per cent of the variance. Factor V, auditory sequential memory, included both digits and speech sounds and accounted for 7 per cent of the variance. Factor VI, visual reception, also included sex with boys tending to have this ability more than girls, and accounted for 6 per cent of the variance. Factor VII, expression of function, included both forms of the ITPA. Manual Expression did not include modality and accounted for 5 per cent of the variance. These findings support the postulate from the Osgood model that the

traits are discrete and measurable. One comment in particular should be noted. In some instances other tasks loaded higher on particular factors than did subtests of the ITPA.

Levinson and Kunze (225) examined the Auditory Association subtest of the ITPA in relation to an analogy model. All 42 items and 2 demonstration items of the ITPA subtest were administered to each subject under 3 conditions: 1) only the last half of the item was presented; 2) items were converted to the Miller Analogy Model; and 3) items were given as in the subtest. The subjects were 36 children, 12 in chronological age (CA) range of 5-4 to 5-7 (1), 12 at CA 6-4 to 6-7 (2), and 12 at CA 8-4 to 8-7 (3). Other than age, children were required to be in a "normal" classroom. Each group was assigned randomly to 6 subgroups in order to equalize the order of presentation. About one week separated testing under the 3 conditions. Each response listed in the revised edition of the manual was scored + and counted as one point. Comparing conditions 1 and 3, Group 1 subjects did not have to see the first part of the analogy to respond correctly to 10 of the first 13 items; Group 2, to 11 of the first 13 plus 3 others; and Group 3, to 11 of the first 13 plus 3 others. An analysis of variance was performed, using condition, age, and order of presentation as the variables, which showed differences (.01) among conditions at all age levels. For all 3 groups, the conditions were ordered 3, 2, 1. The significant Condition × Age interaction resulted from an increase in the relative difference between conditions 3 and 1, and 2 and 1; the difference between 3 and 2 did not change. Of the first 13 items, subjects of all age groups provided the correct answer without completing the verbal analogy. A raw score of 10 is equivalent to age 4-1 on this subtest. The results suggest that below this psycholinguistic age score, no information is available concerning a child's auditory associative skills.

Vogel (402) examined the syntactic information of normal versus dyslexic children and attempted to describe any deficiencies since syntactic seems to be one of 3 kinds of information used in learning to read. The subjects were drawn from 12 elementary schools and were Caucasian second grade boys. There was no evidence of vision, hearing, or emotional problems, and they had adequate receptive vocabulary, intelligence within normal limits, and equivalent educational opportunities. Two subtests of the *Gates-MacGinitie Reading Tests* (Comprehension, and Speed and Accuracy) were used to separate the members of the normal and dyslexic groups. The normals scored at the fiftieth percentile or above, and

each matched a dyslexic by ±3 months in chronological age. The dyslexic group scored one or more standard deviations below the mean on both tests. The mean scores for normals and dyslexics were respectively: Comprehension, 30.75, 11.75; Speed and Accuracy, 20.45, 4.10. Other oral and silent reading tests were given but the results were not used. To compare the syntax and morphology of the 2 groups, 9 measures were used; the *Northwestern Syntax Screening Test* and the Grammatic Closure subtest from the *Illinois Test of Psycholinguistic Abilities*. The other 7 tests were experimental: Recognition of Melody Pattern, Recognition of Grammaticality, Sentence Repetition Test, Morphology for Nonsense Words, the Oral Cloze Procedure (high and low complexity), and the Developmental Sentence Scoring Technique. The channel input was auditory or, in some cases, pictorial. All responses were either gestural (pointing) or verbal. All subjects were tested individually. Raw scores were used for all except the last test mentioned and for it, the mean score was used. A multivariate analysis of variance was done and Wilk's Lambda Criterion was used to determine significance of differences between the groups. On only 2 of the syntactic measures were the differences not significant at the .01 level or better: 1) the experimental test of Recognition of Grammaticality and 2) the *Northwestern Syntax Screening Test*. A step-wise discriminant analysis identified 3 of the measures as best discriminators between dyslexics and normals: 1) Grammatic Closure, 2) Morphology for Nonsense Words, and 3) the Recognition of Melody Pattern Test. Discriminant scores were computed for each individual and group membership probabilities for each group centroid were computed. For the normals, the probability was .889 that they would be in the normal group. For the dyslexics, the probability was .989 that they would belong to that group. With about 99 per cent of this dyslexic group showing syntactic problems, it was suggested that reading readiness tests should include specific measures of syntactic abilities.

Lefton, Spragins, and Byrnes (222) investigated the effects of formal training with English orthography on the accuracy of guessing missing items in pseudowords of first and fourth order approximations to English. Three groups of 10 children each from grades 1, 3, and 5 were chosen from a single school. Their reading levels were at or above grade according to teacher judgment and performance on the *Wisconsin Design Word Attack Skills* test. All knew the alphabet. The stimuli were 7-item pseudowords, either first-order or fourth-order approximations to English, as used by

Lefton. On each card, one letter was missing and the subject had all the time needed to guess the letter. There were 2 orders of approximation and 7 letter positions, so the 14 conditions were arranged in random order and replicated 7 times (84 trials plus a practice trial). The number of correct items was computed for each condition and entered into an analysis of variance. Grade effects were strong, as were the order of approximation of the array and left compared to right side of the array (.001). Two- and three-way interactions also revealed that as pupils had more formal training in English, they showed greater accuracy on fourth than on first order approximations to English, and that accuracy was greater on the right than on the left side of the array. The results suggest a developmental trend in the use of sequential constraints provided by English orthography.

Greeno and Noreen (131) tested the idea that sentences consistent with subject's expectations developed on the basis of earlier expectations were easier to assimilate than sentences unrelated to earlier materials. Eight paid subjects (not described) read 11 sets of 7 sentences each with sentences presented one at a time. Time for reading each sentence was recorded, the subject counted backward for about 15 seconds, and the subject was then asked to recall the substance of the sentence. After each set of 7 sentences, a set of true-false items was presented. Three types of paragraphs were constructed. One type gave a series of categorical relationships—one in each sentence. The same relationships were given in 2 different orders. Another type of paragraph presented ordering relationships between concepts. A third type of paragraph considered 2 sets of concepts so that it was possible to include exceptions to the general trend of the ordering given. Two subjects were tested in each of 4 sequences. The results showed that only 19 of 448 sentences were incorrectly paraphrased after the 15-second immediate retention interval. Analysis revealed that there was no evidence that the different assignments of sentences to conditions contributed any significant amount of variance. Where 2 categorical hierarchies were compared, there was a substantial effect on time taken to read low sentences in the hierarchy, depending on whether sentences from higher levels had preceded them. A second finding was that when a sentence was not consistent with expectations, based on earlier sentences, it took longer to read than when it was consistent. In the true-false items, there were few errors dealing with categorical hierarchies. However, in the hierarchies of orderings, most errors were false positives and occurred on an item specifying an ordering

not given in the paragraph. It was of interest that when a sentence contradicted expectations based on earlier sentences, reading of that sentence and the one that followed were slower.

Miller (268) investigated 2 aspects of learning a miniature linguistic system using real words rather than nonsense words as in prior studies. One aspect of the study was learning the rule of association of word pairs (*e.g.*, noun and adjective). The second aspect of the study dealt with changes in ratings of words, or meaning conditioning. The subjects were 40 volunteers, randomly assigned to 5 experimental conditions. The experiment involved 4 steps: 1) rate 24 words on a 7-point semantic differential scale; 2) learn 10 four-word sentences to a criterion of one errorless recall; 3) same as (1); and 4) recall the 10 sentences to demonstrate that they had deduced the rule. The 24 words were 6 nouns, 6 verbs, 6 adjectives, and 6 adverbs, all occurring in about the same frequency according to the Thorndike and Lorge list. Also, they had to be sufficiently flexible that different sequences resulted in meaningful sentences. The system, not explained to subjects, was that each noun had a specific adjective paired with it and each verb had a specific adverb. The combinations could make 16 sentences, only 8 of which were learned. A second system used 2 other noun-adjective pairs and 2 other verb-adverb pairs. Two sentences from this system appeared, with the 8 described above, on the learning sheet. Since these did not provide sufficient examples of the system, it was necessary to apply the rules of the first system in constructing new sentences. The investigator expected that the mean rated meaning for associated words in a sentence would determine the direction of change for a given word on the semantic differential scale. Finally, a list of 20 noun-verb pairs was presented with blanks for subjects to fill in adjectives and adverbs. Since 10 of these pairs had been learned, interest focused on the results of those 10 which had not been learned. The 5 experimental groups included A) language in natural order, B) natural order reversed, C) each sentence was randomly ordered except for conditions A and B, D) 2 sentences from the first system were randomly ordered and the others were in natural order, and E) 5 sentences from the first system were random and the others in natural order. The first results were based on the number of correct adjectives and adverbs of the 40 used in sentences. Analysis of variance among groups was significant (.01). The order of means of groups, from high to low, was A, D, B, E, C. Duncan's new multiple range test showed significant differences between groups A

(natural language order) and C (random order) favoring group A. No significant differences were found among the other 3 conditions. The second analysis was of the 20 learned words in which group C performed significantly less well than the other groups; no differences were found among the 4 others. The third analysis was of the 20 unlearned responses. Group A subjects responded significantly better than group C, showing they had discovered the rule. Other group means did not differ significantly. Analysis for the second system showed that group C produced the fewest correct responses but no significant differences were found among the groups. Analysis of words supplied in the 20 sentences confirmed the superiority of condition A over C. The final analysis dealt with the rated meaning of words before and after learning the sentences. Of the 24 words rated, 19 changed in the predicted direction, 8 of them significantly. All nouns and 5 of 6 adjectives changed predictably, as did 4 verbs and 4 adverbs. Order of words was not significantly related to ratings. Overall, the association rule was applied successfully to sentences as follows: learned, 52 per cent; unlearned, 53 per cent.

Largen (219) investigated the relationship between ability to understand self-embedded (SE) sentences with 2 embeddings and syllogistic reasoning. Two SE sentences were constructed and played twice from a tape recording in which a dummy sentence appeared between the 2 SE's. Subjects were asked to write verbatim the 2 sentences. A syllogistic measure was obtained by a logic questionnaire modeled after Stewart's. It consisted of 45 items, 15 implicative of the others, employing discourse from the biological sciences. Subjects indicated whether or not each item seemed reasonable. Each subject was classified as either able or unable to understand SE sentences, based on satisfactory response to one of the 2 sentences. A total of 40 subjects performed satisfactorily; 101 did not. The mean syllogistic score for the 40 subjects was 8.73, significantly (.01) higher than 7.93 right for the 101. Modus Ponens and Modus Tollens means for the 2 groups were not significantly different. A Z score for the syllogistic form permitted a cut-off point so that the top 28.3 per cent obtained a score of 9.2. A criterion of 9 items correct was defined as ability to use syllogistic form. A contingency table classifying subjects dichotomously by SE sentences and syllogistic forms permitted chi-square analysis of relationships. On the basis of the results, 60 per cent of those who could understand the SE sentences and 75.2 per cent of those who could not were identifiable from the syllogistic forms. The reverse relationship was not as large, suggesting that

ability to reason with syllogistic form was probably a necessary condition to understand SE sentences with 2 embeddings, but the opposite relationship was not supported.

Jensen (179) examined a variety of aspects of oral language of superior and average fifth graders, produced under casual and formal conditions. Subjects were selected first by random choice of one from each of 5 socioeconomic strata. Then the average subgroup pool included those who ranked between the fortieth and sixtieth percentiles on an average of the *Lorge-Thorndike Intelligence Tests:* Verbal subtest, and both Vocabulary and Comprehension subtests of the *Gates MacGinitie Reading Tests*. The superior subgroup scored above the eightieth percentile on an average of the 3 measures. The second step in selecting subjects was randomly pairing from the pool of eligible subgroups so that they were of equal numbers of each sex and within the same schools. Ten pairs of average males and females, and 10 pairs of superior males and females were randomly drawn to include 80 subjects. Two broad speech styles were defined as casual and careful. To elicit casual speech, pairs of subjects were randomly matched by sex and intelligence and asked to select, by mutual consent, 5 of 10 animals for the New Minneapolis Zoo. A concealed microphone permitted recording of their discussion. Later, each subject met with the investigator individually to substantiate each selection and rejection. All 160 oral language recordings were transcribed without punctuation and analyzed for fluency, grammatical control, and language function. Before analysis, all noncommunicative words or sounds, called "mazes," were eliminated. Fluency was determined by 3 lexical counts: 1) number of words in each transcript, 2) the type-token ratio, and 3) frequency of occurrence according to Thorndike and Lorge's *The Teacher's Word Book of 30,000 Words*. While a number of differences were found, only the significant ones are reported here. Three-way analyses of variance showed that superior subjects and girls showed greater diversity in choice of words in casual language. Superior subjects had more unique vocabularies than average subjects. Finally, the incidence of mazes in casual speech was fewer among males. A second feature of language which was studied was grammatical control, defined as structural complexity of Hunt's T-units. Again, only significant differences will be reported here. Superior subjects used longer communication units, especially in careful speech style. The superior group used longer clauses than did the average, again especially in careful speech. Superior females used more subordination than did

males, especially in careful language. Partial communication units occurred more frequently in the casual style. More incidents of nonstandard usage were found among average subjects, males, and in careful speech. The third feature of language, called function, related to the purposes for which it was used and included 5 classes. Superior subjects and males expressed more tentativeness and more was expressed in careful than casual style. More questions were asked by all groups in the casual than in the careful conditions. Average pupils issued more commands in the casual style than did superior subjects. Average pupils expressed disagreement with their peers more often than did superior subjects. Average subjects and females brought personal experiences to the task more often than did their counterparts. To sum up the differences, 38 of 147 comparisons showed significance (.05). Language style accounted for 13 differences; 9 were ability differences and 6 were sex differences.

Emans and Harms (96) examined the applicability of spelling patterns to syllables and to whole words. The words were 10 per cent, randomly selected, of the graded words beyond the primary level in Thorndike and Lorge's *The Teacher's Word Book of 30,000 Words*. Webster's *New Collegiate Dictionary* was the source to record spelling, phonetic respelling, and syllabic division of words. The spelling pattern generalizations developed by Fries and others were categorized as 12 primary (CVC), 45 secondary, and 36 tertiary. Two criteria of usefulness were set: 1) the spelling pattern must apply to at least 40 syllables in the sample; and 2) the generalization must have 75 per cent utility. The 1,853 words contained 4,819 syllables, only 414 of which did not contain a spelling pattern identified for this study. Analysis showed that 3,384 syllables followed the spelling pattern while 1,021 did not. The per cent of utility, therefore, was 70. In addition, 4 of the 12 primary, 9 of 45 secondary, and 2 of 36 tertiary generalizations met the criteria. The next part of the study examined the application of spelling pattern generalizations of syllables to whole words. Only 360 of the 1,853 words were found which had one or more syllables and did not contain a spelling pattern identified in the study. Of the 81 per cent of words in which every syllable contained a spelling pattern, 54 per cent did follow the pattern while 46 per cent did not.

Mickelson (266) examined the relationship between associative verbal encoding (a/v/e) and reading achievement, then provided training in a/v/e to determine the effects on reading improvement. Two forms of a test of a/v/e were constructed, and a formula was

developed to measure a/v/e for each subject. A table of meaningfulness was set up for 120 words for 9 year olds. Six reliability coefficients were greater than .90 and the correlation of the scores with the reading section of the *Metropolitan Achievement Test* was significant and positive (.01). In this, the final phase of the study, pupils in 14 randomly selected, heterogeneously grouped classes were randomly assigned to treatment and control conditions. Class means were the basic datum, on which 2 × 2 (sex × treatment) analysis of covariance was used to test the hypotheses. The training was done with 96 words, not used in the test, and involved encouragement to give as many responses as possible to the stimulus words. Training periods occurred 2 times daily, using 2 words each period. The control classes used an equivalent amount of time in language arts activities. In each of the analyses, only the main treatment effects were significant (.001). There were no sex nor interaction effects. The conclusions were reached that a/v/e could be improved by training and that reading achievement improved concomitantly.

IV-9 Vocabulary and word identification

Durr (90) attempted to determine word frequencies from reading materials that children select on their own. Initially, 40 librarians representing a variety of geographical areas were contacted and asked, "What books do primary grade children read when they have a free choice of books in libraries?" A composite list of several thousand books was obtained. Experienced teachers subsequently narrowed the list to 80 titles; these books were then computer analyzed in their entirety, producing a corpus of 105,280 running words. From the corpus, 5,791 different words were identified. Of the 5,791 different words, 2,571 were identified as proper nouns, proper names, and onomatopoeic words and were omitted from further analyses. Only the base words of common inflected forms and compound words were counted. Omissions reduced the total number of truly different words to 3,220. It was discovered that the 10 most frequent words accounted for 24 per cent of the words in the 80 titles. A total of 188 most common words was identified, accounting for 68 per cent of the words from the sample of books. Frequency breakdowns of words are included, as well as a listing of the 188 most common words. Results of the study are further discussed regarding implications for teachers.

Hillerich (160) explored patterns of variation among word frequency lists and attempted to identify an updated basic vocabulary

list that minimizes the bias of individual counts. The 500 most frequent words from a number of lists were identified, and a total composite of 995 words were arrived at by combining frequencies of all regular forms of base words. Vocabulary lists utilized in the present investigation were 1) The *American Heritage Word Frequency Book* based upon printed texts in grades 3-9, and involving a corpus of 5,088,721 words; 2) Hillerich's *Analysis of Words Used in Creative Writing, Grades 1-6*, based upon a corpus of 380,340 words; 3) the Kučera-Francis list based on a wide range of all kinds of reading matter, and involving a corpus of 1,014,232 words; 4) Rinsland's *A Basic Vocabulary of Elementary School Children*, based upon the writing of children in grades 1-8 and a corpus of 6,012,359 words; 5) Durr's list of 188 most frequent words in freely chosen children's library books; 6) Dolch's basic list of 220 most common sight words; and 7) Thorndike's basic word list. It was subsequently decided that the construction of a basic "integrating" language arts vocabulary list would be most beneficial. The 995 composite words were then subjected to analyses involving the frequency of occurrence among lists, and relative frequency ranking within lists. A Starter Word List of 240 words resulted; 190 of these were considered high frequency words common to all lists, and within the first 300 in frequency on all lists, and 50 additional words were common to all lists but beyond the first 300 in frequency of use. Extensive discussion concerning the rationale and problems involved in constructing word frequency lists, as well as the Starter Word List itself, is provided.

Feldman and Klausmeier (103) explored the differences in a classification task between fourth and eighth graders after subjects were presented with either a technical or common definition of items to be classified. The task involved the classification of 24 examples of equilateral triangles and 26 assorted geometric figures as exemplifying or not exemplifying a definition of equilateral triangle. Examples varied by size, solid or line drawing, and orientation; non-examples were constructed so that each possessed all but one or 2 major relevant attributes. A technical definition of equilateral triangle specifying 6 defining attributes and a common definition taken from *Webster's New World Dictionary: Elementary Edition* specifying 2 attributes were utilized. Experimental booklets were constructed that contained a sample classification item, one of the 2 definitions, and the examples and non-examples. A readiness exercise was also conducted to insure that each subject could read all of the words in the

booklet. Subjects at each grade level were randomly administered the booklets, containing one of the 2 definitions. Subjects were asked to read the definition, then mark "yes" or "no" under each figure as an example or non-example of an equilateral triangle. Average IQ on the *Lorge-Thorndike Intelligence Test* was 109.1 and 110.6 for fourth and eighth graders respectively. Fourth graders scored lower than eighth graders on the task, regardless of type of definition. Means for subjects receiving the technical definition were 43.33 (fourth graders) and 46.97 (eighth graders); means for the common definition were 45.52 and 46.23 respectively. As expected, fourth graders performed better with the common definition, while eighth graders performed best with the technical definition. Additionally, fourth graders given the common definition performed significantly ($p < .01$) better than fourth graders given the technical definition; differences between definitions for eighth graders' performance were not significant. There was no difference in performance between grades on the common usage definition. The authors discuss the relative effects of comprehensibility, completeness, and technical accuracy of concept definitions on subsequent task performance.

McClellan and McClellan (252) recognized the importance of technical vocabulary knowledge to achievement of college students in science courses, and attempted to discover the relationship between other skills associated with reading and science achievement. Nine measures of reading were obtained on a final sample of 65 students enrolled in a freshman biology class to serve as predictor variables for course grades. Scores from the *Diagnostic Reading Test* (DRT), the Comprehension subtest of the *Nelson Denny Reading Test*, and the *California Reading Test* (CRT) were utilized. Subtests of the *CRT* included Mathematics, Science, Social Science, General, Following Directions, Reference Skills, and Interpretations. The criterion variable of course grades consisted of the conventional A-F scale; letter grades were given numerical equivalents from a high of 4 to a low of 0. The Pearson product moment coefficient was utilized and a coefficient of linear correlation was calculated for each of the 9 predictor variables and the criterion. Correlations between course grades and *CRT* subtests of Mathematics, Science, and General were positive and significant ($p < .01$); the same significance level was obtained between grades and *DRT* raw scores. The Reference Skills and Interpretations subtests of the *CRT* correlated significantly ($p < .05$). Significant correlations ranged from .26 to .41. The authors discuss the practical implications of the results, and suggest class-

room approaches for dealing with problems of deficiencies in specific reading skills.

The discovery of the actual decoding strategies used by competent readers in dealing with unfamiliar words was the purpose of an investigation conducted by Glass and Burton (123). Subjects, 15 at second and 15 at fifth grade level, were first identified as good readers by respective teachers. Subjects were subsequently verified to be good readers by correctly decoding at least 13 of 15 stimulus words chosen from appropriate basal vocabulary lists. They were then asked to read 2 vocabulary lists of 15 words each; all words on both lists were considered new for the subjects. List 1 included 15 words from a set of words identified in previous writings as esoteric for elementary school pupils, but words that could be sounded out correctly providing the children possessed adequate word analysis skills. List 2 was comprised of 15 words constructed to include common letter clusters and sounds. Stimulus words were placed on cards and presented to subjects with the instruction to give the sound of the whole word. All responses were tape recorded. Following the response, examiners quizzed subjects about word attack strategies with questions like: "How did you know it says that? What helps you know how to say the word? What did you look for first?" Fifteen categories of word attack strategies were formulated, the preponderance of which dealt with phonetic analysis strategies. Analyzing observed responses and subject-reported strategies, 85 per cent of the subjects were observed to utilize strategies falling into the general category of sound cluster analysis. All subjects reported using cluster letter analysis. Another routine response involved the reported use of some form of syllabication; however, nearly all subjects employed this procedure *after* the word had been decoded. Only one of the 30 subjects attempted to decode any of the words phonetically; that is, letter by letter. In responding to the question, "What did you look for first?", all subjects indicated that they searched immediately for familiar parts of words that were formed by common letter clusters. Results of the study were discussed in relation to the apparent disparity between observed decoding strategies and strategies currently being taught in the schools.

Knafle (207) studied 636 early elementary subjects from an upper-middle-class Philadelphia suburb in order to determine 1) if color, underlining, and word shape cues influence performance on a recognition task, 2) the role of visual memory in performance on a recognition task, and 3) if differences exist in task performance

relative to grade level and sex. Two tasks were used in the experiment. Task 1 consisted of 10 items on cards in which pattern letters of the stimulus words (*e.g., un* in bun, *ot* in pot) were colored or underlined. Subjects in Task 1 were asked to look at the stimulus word, then to choose the same word from a set of 2 response choices. Task 2 was composed of 10 stimulus items with color, underlining, and word shape cues; subjects (and experimenter) pronounced the words several times; then subjects were asked to choose the matching word from a set of 3 response choices. Subjects were screened for the 2 tasks with a letter recognition task, so that all subjects were matched to the appropriate task condition relative to their reading attainment. Average IQ scores of second and third graders in the study on the *Lorge-Thorndike Intelligence Tests* was 115. In Task 1, color cues and underlining cues appeared to effect significantly higher performance levels on the experimental task, while word shape cues had no effect. Color and underlining cues also appeared to be relatively equal in terms of subsequent performance. Differences were found between grade levels. Task 2 performance was significantly affected by cues of color, underlining, and word shape. In Task 2, several differences relative to sex were uncovered. The author discusses the results, implications, and limitations of the study and calls for additional research in the use of such cues in order to determine who they are most effective with and if they can be used to accent differences rather than similarities.

Klein, Klein, and Bertino (205) studied, utilizing a word boundary (WB) task, the developmental trends in use of context for word identification with 39 fourth and 41 sixth graders. In Experiment 1, four unrelated passages were chosen from third grade instructional materials and modified by making changes such as decapitalizing proper nouns and changing numerals to words. The resultant four 60-word coherent (C) passages were then randomly arranged, producing an incoherent (R) version of each; all punctuation and spaces between words were subsequently eliminated for both C and R versions. Subjects were presented 2 R and 2 C passages, each from a different prose selection. Subjects were asked to perform the WB task by drawing slashes between words as quickly as possible, and were cautioned that accuracy was more important than speed. Additionally, classroom teachers rated each student on a 6-point scale for reading ability. Experimental materials were constructed and administered to sixth graders in a similar fashion.

Fourth grade mean number of words correct for R and C passages were 28.4 and 33.4 respectively. Sixth grade means for R and C passages were 34.6 and 46.5 respectively. A 2 × 2 ANOVA indicated that fourth graders performed significantly ($p < .01$) better on the WB task with C passages. Presentation order of R and C passages was varied in order to further specify the role of context use in the WB task. It was determined that the use of context was not a major determiner of performance on the WB task for fourth graders since use of context accounted for only 16 per cent of the variance in task performance. Similar data analyses used with sixth graders indicated that performance on C passages was significantly ($p < .001$) higher and that the use of context accounted for 65 per cent of the variance in performance of the WB task. Additional results indicated that 9 fourth graders and 2 sixth graders exhibited reversals in performance of the WB task (higher scores on R than C passages). With both groups, teacher ratings of reading ability were significantly ($p < .01$) and positively correlated with use of context. The authors discuss the developmental role of the use of context in reading within the broader framework of a psycholinguistic model of reading.

Klein and Klein (204) investigated factors which facilitated the use of context by competent readers. They used the word boundary (WB) technique in which materials were presented in letter strings and the subject makes a slash mark between words. However, they used 4 passages of about 200 words each in which one form (AP) had hyphens and a space between articulatory phrases while the other (AC) had the same breaks in the middle of the articulatory phrases. Each subject received 2 AP and 2 AC forms, with half receiving one type and half the other type first. The analysis of variance showed that marked articulatory phrase units significantly increased words identified by slash marks compared to incorrect marks.

King (199) examined the differential effects of duration and structural manipulation of an orally presented reading passage. A 25-word passage was presented to adult subjects by tape recording in 3 conditions of speed of presentation: 10-, 20-, or 30-second durations. Presentations were also structurally manipulated by use of 1) a "paced" method in which the material was read word-by-word, with equal pauses between words; 2) a "normal linguistic breaks" method with pauses between linguistic segments; and 3) an "abnormal linguistic breaks" method, with pauses placed incorrectly relative to

linguistic structure. Subjects were asked to write the passage; presentations were repeated until each subject achieved perfect recall. Total learning time, from the start of the first presentation to the completion of the final recall, was recorded for each subject. Shortest total learning time was obtained with the normal linguistic break presentation, while the atypical linguistic break presentation resulted in the longest total learning time. Number of trials and recall time were not affected by mode of presentation. A significant ($p < .005$) sex difference was obtained, with females generally outperforming males, especially in the abnormal linguistic breaks condition. Additional 3-way interactions were noted and discussed.

Walker (405) hypothesized that non-words, as they approached English in similarity, required more complex encoding processes. In a preliminary study, 48 college subjects rated 384 non-words and 96 real words from the Thorndike-Lorge List in pronounceability. The 96 real words were of 2 varieties: common and rare words; they were matched for initial letter and number of syllables. On the basis of pronounceability ratings, 96 non-words were matched to the 96 real words and divided into experimental lists. Subsequently, 8 paid college subjects were asked to categorize all stimuli as non-words or real words; accuracy was stressed and reaction times were recorded. Reaction times for correct categorization were analyzed for the 10 item categories: 2 levels of pronounceability at each of 4 levels of approximation to English and 2 levels of real word familiarity. For non-words, increasing pronounceability resulted in significantly ($p < .001$) more processing time, while real words required significantly ($p < .001$) less processing time. Common word recognition was poorest for all subjects; highly pronounceable non-words were at least as recognizable as rare words for all subjects. Items for which unique, discriminable phonemic representations could be formed (highly pronounceable non-words) were correctly recognized most often. Results were discussed relative to memory processes used in encoding words of varying pronounceability and familiarity.

Klapp, Anderson, and Berrian (203), noting the existence of a reading pronunciation latency effect (RPLE) dependent upon the number of syllables in a word, sought to investigate the question of whether the RPLE is evidence that implicit speech mediates recognition or simply represents the time needed to program the vocal apparatus prior to pronunciation of a word. Experiment 1 consisted of a replication of the RPLE by means of a word naming task. Concrete

nouns, all of which were 5 letters, were presented to 10 experimental and 10 control subjects; latencies were measured for one and 2-syllable words involving 192 trials for each subject. Subjects took significantly ($p < .005$) more time to initiate pronunciation of 2-syllable words than 1-syllable words, although letter length remained constant. In Experiment 2, 18 subjects were presented pictures and corresponding printed words and asked to make same-different judgments in order to determine if the RPLE exists when subjects do not have to prepare to pronounce the word, and to see if latencies are different for different kinds of required judgments. No syllable effect was noted; however, a trend for a syllable effect existed when different decisions were required. Different decisions also took significantly ($p < .001$) longer than same decisions. Experiment 3 required 18 subjects to categorize stimulus words as objects or animals. No syllable effect was uncovered in Experiment 3. The results of Experiments 2 and 3 led to Experiment 4, which required 18 subjects to perform the same task used in Experiment 1 using pictures instead of words. Latencies in Experiment 4 were generally longer than in Experiment 1, and a significant ($p < .05$) effect of syllables was demonstrated; *i.e.*, pictures having 2-syllable names took subjects longer to initiate pronunciation of than pictures having only 1-syllable names. Results of the study were discussed regarding the reading pronunciation latency effect as a function of response preparation rather than perceptual or recognition processes.

Spoehr and Smith (369) further investigated the syllable effect on reading-pronunciation latencies. In Experiment 1, 10 adult subjects were presented equal sets of 2-digit numbers (27 in all) comprised of 2-, 3-, and 4-syllables; baseline stimulus duration times were determined in practice sessions for each subject, and experimental numbers were presented tachistoscopically for the predetermined duration. Subjects were asked to verbalize the numbers presented. No syllable effect was uncovered; in fact, there was a tendency for performance to increase with number of syllables. Experiment 2 required 10 adult subjects to respond to 14 one- and 14 two-syllable words in the same manner as in Experiment 1. Words were matched for initial letter, comparable Thorndike-Lorge frequency ratings, and letter length. A syllable effect was found in Experiment 2; however, the stimulus words were additionally analyzed for syllable-like units (vocalic center groups). This additional analysis indicated the number of vocalic center groups (VCG) appeared to be a better predictor of the number of units a subject

needs to analyze or translate. In Experiment 3, 16 adult subjects responded, in the same manner as in Experiment 2, to 10 one-syllable and 10 two-syllable words of equal letter length. Words in both classes were chosen with the constraint that the first BCG parse led to an appropriate phonological representation of a word. Procedures differed in Experiment 3 in that subjects, instead of orally reporting the flashed word, were asked to respond to a card with 5 blanks, one blank containing 2 possible appropriate letters. Subjects were required to choose the letter that had appeared in the preceding tachistoscopic presentation in the designated blank. An overall syllable effect was found in Experiment 3, relative to the number of letters correctly reported. The authors discuss the results of the 3 experiments in terms of the perceptual nature of the syllable effect.

Baron (21) sought to determine the extent to which a phonemic stage of analysis is used in normal reading, and if direct visual analysis could be as efficient a strategy. A total of 14 college students were presented phrases via a fast-decay cathode ray tube; subjects were asked to determine if the phrases were sense or nonsense phrases and to respond appropriately by pushing a response button which terminated the presentation. A set of 48 stimulus phrases was utilized. Phrases were of 4 varieties: 1) phrases that make sense in the auditory but not in the visual mode, *e.g.*, "in the haul"; 2) phrases that sound the same as set 1 but do make sense, *e.g.*, "in the hall"; 3) phrases that do not make sense in any way, *e.g.*, "nut and bout"; and 4) phrases matched to set 3 that do make sense, *e.g.*, "nut and bolt." Phrases within each of the 4 sets were paired, each pair containing a matched homophone. In the second phase of the study, subjects were asked to respond "yes" if the phrase sounded as though it made sense, and "no" if it did not. Statistical analyses indicated that significantly ($p < .005$) more errors were made on set 1 (5.1 per cent) than set 3 (2.4 per cent) across trials in both testing sessions. No differences in reaction time (RT) were observed in the first experiment. In the second experiment, RT was significantly higher for set 1 than for set 2, as well as errors ($p < .005$). No other significant differences were observed. The results were discussed in relation to subjects' use of phonemic and visual analysis strategies across phrase sets and modes of presentation.

In a series of 3 studies, Rubenstein, Lewis, and Rubenstein (329) investigated questions concerning 1) phonemic recoding as a process for memory storage or visual word recognition, 2) when

phonemic recoding occurs, and 3) the use of phonemic or orthographic codes in search processes. In Experiment 1, 45 paid college subjects were asked to categorize 433 stimuli as sense or nonsense words. Presentation of stimuli involved the use of the cathode ray tube. Stimuli consisted of real words and 3 types of nonsense words: 1) words that could be real words, but are not (*e.g.*, strig, barp, plind); 2) words containing final consonant clusters that never occur in English, but that are pronounceable (*e.g.*, gratf, lamg); and 3) words containing unpronounceable final consonant clusters that never occur in English (*e.g.*, likj, sagm). Results of Experiment 1 indicated that illegal unpronounceable words required less time for categorization than either illegal pronounceable or legal words, and that accuracy also declined as words became more pronounceable and similar to real words. The same subjects were used in Experiments 2 and 3, but none of the subjects in these experiments was included in Experiment 1. Experiment 2 tested latencies of legal nonsense words which were homophonic with English words (*e.g.*, slic-slick) against latencies for nonsense words that were not homophonic. Homophonic nonsense words were further defined as low or high in frequency. Experiment 3 was analogous to 2; however, only English words were used, with homophones and nonhomophones being divided into low- and high-frequency categories. Homophonic low-frequency nonsense words had lower latencies and accuracy levels than the high-frequency counterparts. Nonhomophonic nonsense words had the lowest latencies and highest accuracy levels. Stimuli in Experiment 3 were found to descend in latency and ascend in accuracy level in the following order: low-frequency homophones, low-frequency nonhomophones, high-frequency homophones, and high-frequency nonhomophones. The authors provide extensive discussion of the results in terms of phonemic recoding processes that are apparently used in the analysis of words presented visually, and the role of homophony in recoding processes.

A total of 18 college students were used by Peterson (298) in a laboratory simulation to test the efficacy of self-selection of vocabulary for learning to read. Each subject was required to learn a test of 30 paired associates where the stimulus was a schematized Chinese character and the response was an English word. When subjects chose the words to be learned, learning was more rapid than when words to be learned were selected by the experimenter from basal readers.

IV-10 Factors in interpretation

Kretschmer (211) developed a test of comprehension based on Piaget's concepts of operational level, then studied the results at third and sixth grade levels. The concrete operational level, or the period of intellectual growth accompanied by classification and seriation in the presence of concrete props, occurs from ages 7 to 11 years. A 32-item multiple choice test over 4 paragraphs was constructed. The 4 paragraphs represented classificatory-additive, and serial-multiplicative operations. Eight questions following each paragraph represented 4 categories: easy versus hard, and extension-based versus intention-based. Paragraphs and questions were presented in random orders on 3 forms of the test; and on each form, each paragraph included 4 types of each question. The paragraphs were equated for length, sentence length, and content—with minimal length and content with minimal vocabulary. For all subjects, scores on the *Lorge-Thorndike Intelligence Test* were obtained; for third graders scores on the *Iowa Silent Reading Test* in vocabulary and comprehension, and Monroe-Sherman comprehension subtest scores for sixth graders were obtained. The groups were shown to be homogeneous in relation to chronological age. To determine relationships in the experimental data, coefficients of correlation were calculated among subtests of the standardized and experimental tests. The IQ, vocabulary, and comprehension subtests correlated highly with each other, but to a limited degree (though significantly) with the experimental variables. Differences were assessed by use of a 2×8 repeated measures ANOVA, grade levels by operations. Sixth graders scored significantly higher than third graders on all variables but neither operations nor item categories differed in either group and there was no interaction. Since the questions following experimental paragraphs required classification or seriation to arrive at a correct answer, the absence of differences suggests that these operations develop simultaneously in children.

Chapman (54) explored a hierarchical theory of literal comprehension through specific instructional techniques, compared to a control group. She postulated that literal comprehension was composed of distinguishable skills so that simpler ones provided input for the application of more complex skills. She defined comprehension as the ability to respond correctly to wh-question transformations on the syntactic structures of verbal passages. She assumed a hierarchical linguistic order from simple to complex composed of 5 skills. She

designed a 10-week auto-instructional program consisting of 50 lessons per experimental group to develop either sentence or intersentence comprehension. The control group had arithmetic enrichment lessons for the same amount of time. A criterion test was developed which included the 2 experimental skills and 3 skills that had not been taught: vocabulary, anaphora, and inferential comprehension. The 318 subjects, from Caucasian middle class and black lower class areas, were randomly assigned to one control and 2 experimental groups, stratified by socioeconomic class and ability. Multivariate analyses of variance and covariance and the Tukey method of multiple comparisons supported a hierarchy by positive transfer in learning from the simple sentence comprehension to the more complex inter-sentence comprehension but not to the 3 skills which were not taught. Each experimental group scored significantly higher than the control group on the skill that had been taught. However, prior to instruction, the reading test scores for different skills did not conform to a hierarchical, or simplex, structure. The global model fit the data better when the skills were tested independently across passages. Using the Guttman scalogram analysis technique, when skills were tested interdependently within passages, an average reproducibility coefficient of .87 was obtained showing some evidence of a hierarchy of skills. Data showed that the experimental treatment did not change the structure of the skills.

Pettit and Cockriel (300) reported on 2 new tests of comprehension, analyzing their structure by using 2 methods to determine their major components. The subjects were 533 pupils from a public school system. The *Literal Reading Comprehension Test* (LRC) includes subtests: Detail, Main Idea, Sequence, Comparison, Cause and Effect, and Character Traits, all of which were given in the 18 reading passages and tested by 101 multiple choice items. The *Inferential Reading Comprehension Test* (IRC) includes: Detail, Main Idea, Word Meaning, Character Traits, and Outcomes, all of which must be inferred. The IRC is composed of 14 passages with 73 multiple choice items. Each subtest contains at least 10 items. Both tests were constructed by Pettit and studied previously for reliability (.92). Intercorrelations of the 11 subtests were submitted to a principal components factor analysis. Two principal components accounted for 71.3 per cent of the variance. Two factors emerged with the subtests primarily weighted as in the tests. A second analysis by maximum likelihood, first assumed one factor. However, 2 factors emerged as in the first procedure.

Johnson (184) investigated the ability of college students to predict the portions of 2 texts which would be difficult to recall, then secured ratings on 6 factors which might account for the difficulty. A total of 560 students rated the selections by marking out those subunits least likely to be recalled. The attributes chosen which might contribute to difficulty of recall were structural importance, meaningfulness, concrete-abstract, specificity of denotation, comprehensibility, and interest. The attributes were judged by 320 students on 7-point scales. A coefficient of correlation of .79 was obtained between the ranking and eliminative methods. Besides, 119 students read one or the other passage twice and recalled it immediately; 102 read one passage and recalled it 7 days later. Each passage was divided into quarters in terms of the difficulty of subunits and scores of those who actually recalled the materials were grouped in the same way. The results showed significant differences (.001) between immediate and delayed recall. The intercorrelations among the textual dimensions of both passages, predicted recall and actual recall, were significant at the .05 level at least. Stepwise multiple regression analyses, with predicted recall as the dependent variable, showed the factors accounting for the raters' judgments. The 5 variables in the optimal set showed a multiple correlation of .90 with predicted recall. The significant variables for one selection were, in this order: meaningfulness, comprehensibility, interest, serial position, and specificity. For the other selection meaningfulness correlated .84 with predicted recall; the remaining factors raised it only to .86. In all instances the remaining factors were far less important than meaningfulness and comprehensibility.

Smith (365) examined the effects of materials written near the syntactic level of subjects, as well as at lower and higher levels, to determine which level produced the best comprehension. Also he repeated an earlier study using a new passage written in simpler vocabulary. The base passage, called "Bee," was rewritten in 4 syntactically different paragraphs to represent the writing of grades 4, 8, and 12, as well as Skilled Adults. The cloze procedure was used, deleting every fifth word. The same subjects were used as in an earlier experiment, with about 30 in each of grades 4 through 12, who read the selection at 4 syntactic levels. The cloze scores in each of the 9 grade levels were subjected to 9 separate one-way analyses of variance. Only at fourth and sixth grade were the F ratios significant (.05). The Duncan Multiple Range tests showed that fourth graders

read their own level of writing better than any other; sixth graders read fourth and eighth better than twelfth and adult levels. On the eighth grade level of writing, those in grades 10 through 12 read with higher comprehension than did those at grades 4 and 5. Since the vocabulary of this selection had been simplified, fourth graders performed somewhat better; but there was little difference between the performance at other grade levels between the "Bee" and the earlier "Aluminum" scores. Individual scores on the 2 selections correlated .79; means of the groups correlated .82. The conclusion was reached that students comprehend best the materials written near their own productive syntactic levels, and that simplification of syntax increases the difficulty for high school students.

Perfetti and Garson (297) investigated the retention of meaning, the grammatical form of a sentence, and the particular words used, over 3 time periods. The subjects were paid for participating once and some twice in the experiment. The materials were 4 short prose passages from popular but literate magazines. Each sentence of the passage was reproduced in one of 4 ways: 1) unaltered (U); 2) one lexical substitution for one content word with meaning unchanged (L); 3) one lexical substitution which changed the meaning of the sentence (S); and 4) the grammatical form was changed but not the meaning (G). In the 4 versions of each passage, every sentence appeared in every one of the 4 forms. Four subjects read each version of each passage so that 16 read each passage. Four minutes were allowed to read the passage once only. Subjects assigned to immediate recall took the test immediately. Another task was introduced for those assigned to the 30-minute recall interval. Another group returned for the test in 24 hours and the remainder returned in one week. The recognition test was a booklet with one sentence and a 2-choice response on each page. Subjects marked "identical" or "changed"; if the latter, they marked a single word or a grammatical form. Corrections were made for false positives. The main results were that semantic information was retained significantly better (.01) than grammatical or lexical at all time intervals. Also, lexical and grammatical information were equally well retained in the immediate test but were not retained better than chance thereafter. Analysis of variance confirmed the findings. When corrected for bias, there was a marked tendency for subjects to indicate a change in form when there was none. In short, subjects could not identify the source of sentence changes with any degree of

success. The conclusion was reached that what is remembered from reading is the relational semantic and lexical semantic information but little phonetic and superficial grammatical information.

Guthrie (136) explored similarities and differences among disabled and normal readers in sentence comprehension and their uses of syntactic cues. The 12 disabled readers were enrolled in a remedial program, had a mean life age of 9.99 years and a mean IQ of 100.08 on the *Peabody Picture Vocabulary Test*. Their mean reading grade was 2.54 on the Vocabulary subtest of the *Gates-MacGinitie Reading Test*. Screening tests showed normal vision, hearing, neurological functioning, and emotional adjustment. The normal young group was matched to the disabled group on reading level and IQ. The normal older group was matched to the disabled group on chronological age and IQ. Passages of 162 to 166 words were selected from basal readers so that difficulty levels, according to readability formulas, were at grades 1.6, 1.9, 2.4, 3.4, 4.5, 5.2, and 5.9. The passages were modified to produce a comprehension task, labeled the *maze task*. About every fifth word, 3 alternatives were offered, called slots. They were of 4 categories: noun, verb, modifier, and function. The alternatives for the primary levels were chosen from the Dale list of 769 easy words; for the upper levels, from the Dale list of 3,000 words. One alternative was syntactically equivalent while the other was a lexical change. The scores on the maze task correlated .85 with the Vocabulary subtest of the Gates, and .82 with the Comprehension subtest. Reliabilities were reported as .90 or above. Analysis of variance showed a significant effect for groups, for passages, and interaction of the 2. The normal older group comprehended better (.01) than the normal younger group, and the latter scored higher (.01) than the disabled group. Passages 2, 3, and 4 were critical since they were the ones on which the normal young group surpassed the disabled group. It had been established that the disabled subjects knew the vocabulary, but the maze task showed that they were deficient in comprehension. Speed of performance on the maze task also showed a significant effect for groups, for paragraphs, and an interaction. The interaction was probed with the Neuman-Keuls *post hoc* tests. Results revealed that all groups decreased in time as the trials progressed. The disabled group read faster (.01) than the young normals, so their deficiency was not attributed to low speed of decoding. To study form classes comprehended, only passages preceding 50 per cent correct were analyzed. The response for each slot was scored correct, error-

syntactic or error-lexical. Analysis showed no main effects for form class. However, an interaction between category and form class was probed. The number of syntactic responses was lower for nouns and modifiers than for verbs and functions (.01). The number of lexical responses was higher for nouns and modifiers than for verbs and functions (.05). From these findings it appears that the comprehension of verbs and function words in silent reading is determined by syntactic cues, while that of nouns and modifiers is based on semantic cues. Moreover, disabled readers exhibited the same types of errors as normals, only more of them.

The next 3 investigations reported deal with the effects of advance organizers on comprehension. Andrews (12) compared a cognitive organizer (CO) with directed reading questions (DRQ) and a combination of the 2 on subsequent comprehension with seventh graders. First, deletions of a selection by the cloze procedure established that the students could read the selection. Three weeks afterward, 2 of the 6 class groups were selected randomly to listen to a cognitive organizer, another 2 classes listened to the direct questions, and the last 2 listened to both CO and DRQ. Then the classes read the selection and completed a 7-item comprehension test. Analysis of variance showed significant (.01) differences between the means of the groups. The CO group had the largest mean score, the combined group next, and the DRQ lowest.

Barron and Cooper (22) compared the effects on comprehension of a prose organizer and a graphic organizer with none at all, using students in grades 8 through 11. First, all students took a 50-item cloze test on the 2,300-word passage dealing with stars. Only those 224 students for whom the cloze test represented appropriate instructional levels as determined by Bormuth were included in the study. Students were assigned randomly to the prose organized group which reviewed terms, related the process of comparing people to that of comparing stars, and introduced various characteristics of stars; to the "graphic organizer" in which key vocabulary was presented in diagrammatic form and discussed; and to a control group which had no prereading activity. Comprehension was measured 24 hours after reading. The 35-item test was carefully constructed and revised until the internal consistency coefficient was .72. Analysis of variance on the cloze test scores showed no significant differences among the 3 groups. On the outcome measure, analysis of variance showed no significant main effects; and neither type of organizer differentially affected learning at any of the 4 grade levels.

The third study by Proger, Carter, Mann, Taylor, Bayuk, Morris, and Reckless (307) compared the comprehension of a selection using a control group and 4 methods of advance organization. The 4 methods were completion pretest, true-false pretest, sentence outline, and paragraph abstract. The 2 pretest treatments were considered overt while the outline and abstract were classed as covert. The passage, consisting of about 1,674 words, dealt with the life of Marconi and his wireless inventions. It came from a sixth-grade reader and was considered high in interest. Eight general concepts from the passage were identified and used in each of the 4 organizers. The directions, the work-sheet (organizer), and the passage were placed together in a booklet. The comprehension test included 25 multiple choice items. No time limit was placed on reading the booklet or answering questions. The subjects came from 4 grade 6 classes in which teachers had already made reading grade level evaluations. The 112 subjects were assigned to the 5 groups on a stratified random basis, using reading level for stratification. Comprehension scores were subjected to a $5 \times 2 \times 3$ (treatments × sex × reading levels) analysis of variance. There were no overall significant effects of treatments. However, the Treatments × Sex interaction was significant. Only for girls was there a difference in which the sentence outline group performed significantly better than the completion pretest group. Besides, the average covert group performance exceeded the average overt group performance. In addition, there was a significant methods by reading grade interaction. Among those pupils reading above grade 6, the covert group exceeded the overt group. For students reading at grade 6, the paragraph abstract group surpassed the control group. In a second study, the same procedures, reading passage, and criterion test was used with another 60 pupils from grade 6. In this study the advance organizer was the sentence outline summary. A concurrent organizer, consisting of underlining key concepts, was also used. Levels of test anxiety were determined from results on the Test Anxiety Scale for Children. Text anxiety was nested under reading level so a hierarchical design was used. Reading level isolated a large part of the error variance. Among the unnested factors, advance organization, concurrent organization, and reading level, no main effects or interactions appeared. However, for low-anxious pupils, concurrent organization was more effective than no such organization, and advance organizers were ineffective. For high-anxious pupils, both advance and current organization was most effective.

IV-11 Oral reading

Stafford (370) explored the effects of 3 types of directions or purposes set by the experimenter on oral reading. Subjects were asked 1) to read carefully, to answer questions; 2) to read for 2 specific purposes at a literal level of understanding; and 3) to read for one general purpose—the central theme or main idea. Four dimensions were examined for differences: word accuracy, comprehension, rate, and per cent of semantic substitutions. The materials were the *Gilmore Oral Reading Test*, which was tape recorded. Forty-five subjects at each of grades 3 and 6 were randomly assigned to the 3 treatments. Measures of the 4 dimensions were computed for each subject and a 2 × 3 analysis of variance was calculated. None of the F values was significant at an alpha level of .05, and there were no interactions between grade and treatments. The conclusions reached were that in an oral reading test at these grade levels, the purposes proposed by the investigator made no significant differences in oral reading. Several important explanations were proposed, one of which was that the questions following each paragraph of the test may have taken precedence over stated purposes. Another one explained the differences between oral and silent reading.

Pehrsson (294) investigated the effects of oral reading for comprehension and for accuracy in word recognition as measured by comprehension, rate, and number of errors. Basically, the major purpose was to establish the values of teachers' emphasis on word-accuracy. The subjects were 25 "average readers" as judged by their classroom teachers and another 5 for a subsequent analysis. The passages were 200-word biographical selections from a sixth-grade reader, designed to pose problems in word recognition. Three passages were rotated for the different treatments. Time was recorded, errors were analyzed according to directions for the *Gilmore Oral Reading Test*, and comprehension was measured by asking each subject to retell what had been read. Subjects were told to read the first passage orally in order to tell the investigator what it was about. They were told to read the second passage by paying close attention to the words in the story, and the investigator "helped" the subject by correcting each error. Subjects were told to read the third passage carefully and to pay close attention to the words. Analysis of variance revealed significant (.01) differences in treatments on the comprehension scores. When meaning was stressed, comprehension was significantly higher than when errors were corrected or when attention was given to word accuracy. Rate was significantly (.05) lower

when attention was given to word accuracy. Moreover, the mean number of errors increased from the first to the second and third treatments with the greatest increase from the first to the second. Since a question arose concerning fatigue effects in reading the 3 passages, 5 additional subjects read each of the 3 passages, rotated in order, for meaning. Comprehension improved with each passage and rate decreased slightly from the first to the second passage. The conclusion reached was that comprehension decreased when the investigator interfered with on-going oral reading, and, at the same time, the number of errors increased as attention was directed to word accuracy. The results were interpreted to mean that emphasis on meaning helps childrens' oral reading performance in relation to comprehension, rate, and number of errors.

The next 2 studies relate to the problems of stutterers as they read orally. Silverman and Williams (359) determined the relative number of errors and revisions of stutterers compared to non-stutterers. In second through sixth grades, 69 stutterers and 66 with no history of stuttering were the subjects. Distributions by school grade, chronological age, and sex were similar for both groups, but no other information about subjects was provided. Each subject read a passage from a basal reader about one year below his present grade level. Number of reading errors, number of revisions, and per cent of revisions per 100 words spoken were recorded. The median number of errors for stutterers was 3.2 and for non-stutterers, 3.6. Non-stutterers revised 40 per cent and stutterers revised 22.2 per cent of reading errors. The conclusion was reached that stutterers revise fewer errors than their peers, and that this, in turn, contributes to communication handicaps.

Adams, Lewis, and Besozzi (3) evaluated the effects of decrease in oral reading rate on stuttering frequency. Subjects ranged in age from 15 to 30 years and stuttered, but no further description of them was given. A simple prose passage of 120 words was constructed and typed on a single sheet of paper, then hand-printed on 3 × 5 cards, one word per card. In the control condition, subjects read at their normal rate. In the experimental condition, the researcher exposed each word on a card for approximately one second. If a subject stuttered, the examiner waited for the word to be pronounced before proceeding. Each subject read under both conditions in counterbalanced order with about 5 minutes between readings. The oral productions were tape recorded, as were the responses when the subjects were asked to summarize, briefly, the meaning of what they had read. Frequencies of stuttering under both

conditions were recorded from tapes by 2 experimenters who had 80 per cent agreement on frequencies of stuttering. The Wilcoxon matched-pairs signed-ranks test was used to test significance of differences in median and interquartile range. The difference was significant (.002) with a median of 12.0 instances of stuttering in the control condition and 6.0 in the experimental condition. All subjects' statements accurately reflected the meaning of the passage.

Ekwall (94) sought to determine whether repetitions should be counted as errors in oral reading to determine the frustration level on the informal reading inventory (IRI). The subjects were 64 boys and girls equally divided among grades 4, 5, and 6, and representing approximately by thirds: the above-grade level, the at-grade level, and the below-grade level in reading. Each subject was given the IRI while being monitored by the polygraph to detect anxiety. Subjects began at a level easy enough to indicate normal readings on the polygraph. At the frustration level indicated by the polygraph expert, the errors in oral reading of that passage were counted with and without repetitions. The *z* test was used to determine whether the averages of errors were significantly different from the 10 per cent criterion commonly accepted. The results showed a significant difference (.05) when all repetitions were omitted as errors, but none when all were counted. The mean number of errors with omissions included was 8.90, which approaches the theoretical 10.

Hardyck and Petrinovich (146) investigated the relationship of subvocal speech (EMG recordings) to the conceptual difficulty level of reading material and to its comprehension. A panel of 8 judges (all remedial English instructors) rated several essays according to interest and difficulty levels. Two essays were subsequently chosen for the stimulus materials: both were rated as equivalent in interest level, but differing in difficulty level. The easy selection was 3,975 and the hard selection was 3,443 words in length. Three experimental groups of 6 subjects each were identified: 1) a normal condition in which several types of EMG data were recorded, 2) a similar condition, differing only in that subjects received EMG feedback, and 3) a control condition in which EMG information was recorded from an arm muscle rather than the vocal muscles, and feedback provided. All subjects read both passages in different sessions; subjects responded to a 25-item comprehension test for each passage after reading and taking a 10-minute relaxation period. EMG activity increased in the normal and control groups and remained near zero for the feedback group. Both laryngeal and chin-lip activity increased in relation to difficulty level of materials, but arm muscle activity

showed no such change. Results also indicated that if increase in laryngeal activity is prevented by use of feedback, the level of comprehension drops for the difficult essay. This drop in comprehension was not found to be related to arm or chin-lip muscle activity. The authors consider the results relative to the association of visual symbols with their vocal counterparts, and the replacement of this stage by neural analogues as skill in reading increases.

Aarons (1) attempted to determine if differences in levels of subvocalization during silent reading are related to differences in speech intensity and/or rate during normal oral reading and reading with delayed auditory feedback (DAF), and if self-regulatory training to reduce subvocalization modifies normal speech and DAF effects in oral reading. Twelve adult males were matched on the basis of part scores from 1) the *Iowa Silent Reading Tests*, 2) the *Gray Oral Reading Test*, 3) the Arithmetic Reasoning subtests of the *Wechsler-Bellevue Intelligence Scale*, and 4) *Medical College Admission Test*. Subjects were also assessed for speech-muscle activity (EMG) during silent reading, and subsequently defined as high subvocalizers (HV) or low subvocalizers (LV). Subjects were then presented arithmetic reasoning problems by means of a slide projector and headphones under conditions of normal auditory feedback, DAF, or an auditory signal of EMG activity. Training in the use of EMG feedback was also provided. A number of additional variables were measured, including: 1) heart rate, 2) eye movement rate and regressive eye movements, 3) reading speed, 4) sound intensity in oral speech, 5) syllable rate, and 6) eye-voice span. Results of data analyses indicated that LVs had higher relative sound intensities than HVs in normal oral reading, but not in a DAF condition; feedback training was effective in reducing subvocalization for both groups and was found to eliminate differential sound intensities in HVs. Variations in heart rate, eye movements, reading speed, syllable rate, eye-voice span, and performance of experimental task were related to experimental conditions but were not different for HVs and LVs. The author discusses the measurement of speech-muscle activity, feedback training, and other factors investigated in relation to implications of subvocalization for speech, memory, thought, and reading.

IV-12 Rate of reading

Himelstein and Greenberg (161) explored the question of change in the amount of material comprehended as reading rate

increased. Subjects were 20 chosen from a pool of 100 college students such that the base rate and comprehension levels of 10 experimental and 10 control subjects were matched. The test materials were booklets, each containing 1,000 words, taken from Baker's *Reading Skills*. In 12 booklets, there was an increase of 15 words per page from numbers 1 to 12. The first was set at 235 words per minute (wpm) and the last at 400. The comprehension test accompanying the original selections were used here. The base test, on which the subjects were matched, was of the same type; but on it each rate was timed. Mean rate for both groups was 283 wpm with comprehension for the control group at 85 per cent and for the experimental at 83 per cent. This difference was not statistically significant. All subjects were given the same basic instructions, to read as rapidly as possible with the greatest comprehension. In addition, the experimental group was told that for each page completed in 45 seconds or less, a green light would appear; if more than 45 seconds elapsed, a red light appeared. The examiner recorded the time taken to read each booklet in both groups but no feedback was given to the control group. A 2-way analysis of variance with repeated measures was computed over mean base line rates and those on the 12 booklets for both groups. There was significant (.01) effects on rates due solely to the groups; also a significant (.001) effect attributed to progress through the booklets and an interaction effect. All rate means on differences favored the experimental group. However, comprehension tests did not differ for the 2 groups although there was a significant decrement in comprehension, as they progressed through the 12 booklets, on the part of both groups. A comparison of the twelfth with the base rates and comprehension showed significant (.001) rate differences but none in comprehension.

McConkie, Rayner, and Wilson (257) investigated the flexibility of speed used by college groups given different types of questions to answer after reading. All subjects were motivated by points earned for which they were paid. Six passages of about 500 words each were used with 5 types of questions. Four were multiple choice, calling for factual information, numerical data, order of topics in the selection, and making inferences. The fifth type required subjects to recognize 10 words and phrases used in the selection from a group of 20, including 10 foils. Subjects recorded the time used to read each passage and were given immediate feedback on the number of correct answers to questions. In Experiment I, they were given bonus points for reading rapidly. A sixth group always received

questions asking for the best title and the author's main point. The seventh group received a question of each of the 5 types. Subjects recorded the time used to read each passage and received immediate feedback on accuracy of answers. Bonus points were received for reading rapidly. The first and last passages were read by all subjects. There were no significant differences in reading speed among the 7 groups on the first passage but there was (.01) on the last. The 7 × 5 analysis of variance on the test questions following the last passage showed significant Group × Type of Question interaction. The fastest group answered the number questions and the slowest was the combined group. Profile-similarity scores were computed for all pairs of groups by Johnson's methods. The results showed a hierarchial structure. In Experiment II, 3 additional groups of 15 each were paid by the number of correct answers with bonus points for reading slowly. They received factual, higher order, and recognition questions on the same passages used in Experiment I. The results showed no differences among these groups, but the subjects in Experiment I read significantly (.001) faster on the test passage than did those for Experiment II, yet received higher scores in answering the test questions. Analysis of the number of questions of the type practiced versus other types led to the conclusion that changes in reading speed primarily influence the amount of incidental information acquired but have little effect on the information sought to answer specific kinds of questions.

McConkie and Rayner (255) investigated the effects of selected manipulations in the task and payoff structures on reading rate and test performance. The subjects were 70 college students randomly assigned to 7 conditions. Seven passages, each about 500 words, were of approximately equal difficulty according to the Flesch readability formula but they dealt with diverse topics. Ten questions requiring short written answers, testing clearly stated details, were developed for each passage. An individual booklet was prepared for each subject with test questions on separate pages so subjects could not reread the passage. Each subject read all 7 passages, systematically varied in order. Four groups were tested on each passage immediately after reading it (Immed); 3 groups were tested after all passages were read (Delay). Three of the Immed groups received points convertible to cash (P). Two of the P conditions emphasized speed (P[S]) and one retention (P[R]). One of the Immed-P(S) groups received very clear instructions and direct feedback after each passage (Immed-P[S]-Sp). The subjects in the other one received less

complete instructions and were simply told how many points they had earned after each passage (Immed-P[S]-V). The Immed-P(R) group received specific instructions but was given 2 points for each correct answer and 2 or 1 bonus points for different speeds. The fourth group (Immed-C) received no feedback and no payoff but read each passage and answered the questions. The Delay groups were given test questions in random order. Delay-P(S)-Sp received payoff emphasizing speed with specific instructions. Group Delay-P(S)-V emphasized speed with vague instructions. Delay-C was the control group, receiving no payoff but being told that they would be tested after reading. Each subject was scored on reading speed and the number of correct answers to questions on each passage. Analysis of variance showed main effects of Condition (.001) and Condition × Serial Position interaction (.01). A Newman-Keuls test of mean rate differences showed that the payoff conditions did not affect speed except when speed was emphasized, directions were clearly presented, and questions asked after each passage. The Delay-C showed decreases over successive passages indicating the need for interspersed checks throughout the task so that subjects could evaluate their reading. The clarity of instructions and completeness of feedback proved to be important in the payoff condition, but the 2 factors were confounded and it is not clear which is more important. Marked differences were found between Immed-P(S)-Sp and Immed-P(R) means, showing the effects of clear emphasis on speed. Of interest was the lack of difference between the Immed-P(R) and Immed-C groups. This similarity shows that subjects could judge their own effectiveness when questions followed each passage. In general, flexibility could be noted when the structure of the task was clear. The payoff conditions had no effects on the recall test. The only differences were between immediate and delayed recall, regardless of the accompanying conditions. Moreover, recall was quite independent of reading speed, further emphasizing the lack of direct relationship between changes in reading rate and comprehension. All of the changes and adaptations of these 7 groups to specific conditions were called strategies and this study began to separate information about the task and payoff conditions.

Hardyck (145) treated 92 subjects by a procedure in which an electromyogram was determined for each subject and a triggering mechanism activated a 500 Hz tone when the subject exceeded the resting level to eliminate subvocalization. All college and adult subjects mastered the procedure within one hour. Repeated screenings

over several months showed no recurrence of the subvocalization while control subjects continued subvocalization. However, there was little change in reading speed from pretest to post test. The high school students required 2 hours to eliminate subvocalization. Subjects with average IQ's of 94 reverted to subvocalization while those with average IQ's of 113 did not. The latter group gained 7 months on the *Gates Reading Survey Test* in one month while the former gained 3 months.

IV-13 Other factors related to reading

Mickish (267) explored childrens' competence in selecting words from a sentence in which no space appeared, a means of determining word boundaries. The subjects came from 5 classes, selected randomly from 30 available. All were white, at the end of their first school year, and from a middle to upper-middle class community. The test included 2 practice items to demonstrate drawing a vertical line and a sentence typed without spaces between words (Thecatandthedogplayball). A tape, saying the words of the sentence, was played continuously while the children marked vertical lines between the words. The number of correct words marked was compared to the Level (I-IV) in reading which each had completed during the year. No pupils at Level I marked all 6 word segments correctly. The per cent increased with succeeding levels until 81 per cent at Level IV were successful.

Keller, Croake, and Riesenman (194) explored the multiple interaction with reading achievement of handedness, intelligence, grade level, and sex. The subjects were drawn from a pool of students in grades 3 through 12, based on hand preference, determined by questionnaire concerning the hand used for writing and the foot used for kicking. All who gave mixed choices to these 2 questions were omitted, as well as any whose statements differed from information in the school files. From grades 5, 6, 8, 9 and 12, only 15 left handed students were identified and 15 right handed subjects were selected from each grade. IQ was obtained from the *California Test of Mental Maturity*. Reading achievement for grades 3 through 7 was determined by the total Vocabulary and Reading Comprehension subtests of the *Comprehension Test of Basic Skills*; from grades 8 through 12, it was the total Verbal Reading score on the *Florida Ninth Grade Achievement Test*. The results showed that the proportion of left and right handed boys and girls were similar. No significant differences were found between mean IQ's of left handed and right handed

subjects, or between boys and girls. Reading achievement did not differ between sexes or between left handed boys and girls, or right handed boys and left handed girls when controlling for IQ and grade level. Significant correlations were found between IQ and reading achievement in all groups (and grades) classified according to sex and handedness. Significant differences were found in the coefficients of correlation only in grades 3 through 7 in the following comparisons: boys lower than girls; left handed boys lower than left handed girls; left handed boys lower than right handed boys; left handed boys lower than right handed girls, and right handed boys lower than right handed girls. In grades 8 through 12, no significant differences were found between groups in the correlations of IQ and reading achievement.

Van Zoost and Jackson (396) carried on an experiment to improve study behavior of volunteer college students, twice a week for 4 weeks. The control group had no monitoring. The first experimental group (S.C.) had study cards on which they recorded points for organizing their study, learning a page of text, writing an essay outline and the like. The second experimental group (L.C.) recorded library activities and evaluated them. Members of each of the experimental groups evaluated their own behaviors and arranged to be paid up to $0.75 per period. The undergraduates completed the following tests: *Costello's Achievement Motivation Scale, Quick Word Test, Suinn Test Anxiety Behavior Scale,* and the *Survey of Study Habits and Attitudes.* Subjects in the 3 groups were matched on the last test and the one on test anxiety. The last test was given again at the end of the experiment and 6 months later. A questionnaire evaluating the program was filled in at the end of the experiment. Results showed that all groups improved but there was no difference among the 3 conditions. Evaluation forms showed that a high (99 per cent) proportion of the subjects found the program helpful.

Locke (231) began an investigation of whether subvocalization in silent reading was a subvocal form of oral reading. Six young adults with normal speech, hearing, and vision served as subjects. Each subject read 3 anecdotal passages of 175 words from cards. The passages were constructed to keep lexical familiarity, syntactic complexity, and information load at an easy level within and across selections. The distinctive feature was that each passage contained a different proportion of words whose pronunciations required labial motor gestures. The high incidence passage had 83 per cent labial

words; the moderate one, 48 per cent; and the low incidence one 14 per cent. Subjects were given one minute to read each passage and prepare to answer questions on it. Electromyographic (EMG) surface electrodes were secured to the chin and the interior surface of the lower lip, as well as other positions, which reduced the attention to speech. EMG records were analyzed by assessing the voltage of each subjects' single greatest tracing peak and valley within each 10 seconds for the 3 passages. The average of peak and valley was entered for each interval. Averages across subjects and intervals were 36.2 for the high labial passage, 21.2 for the moderate one, and 23.9 for the low passage. A signs test showed a significant difference between high and low labial conditions but moderate and low conditions did not differ significantly. Comprehension scores were nearly perfect for all passages. The results show that subvocal activity in silent reading is a form of speech and can be measured.

Oller and Tullius (288) explored the reading proficiency of 50 non-native English speaking college students. The subjects were volunteers from an English second language (ESL) program and spoke 21 languages. Included were Japanese, Spanish, Hindi, Korean, and Arabic. The Reading Eye was used for eye movement photography (EMP), with measures of: number of fixations, duration of fixations, number of regressions, average word span, and average number of words read per minute. Comprehension was set at [illegible] per cent; those who scored less were given easier selections. A relative efficiency (RE) score was obtained by comparing the other measures with the norms for the instrument. In addition, the 6 parts of the *UCLA ESL Placement Examination* were given. The results showed that 31 subjects could comprehend the advanced college-level materials; 9 used the junior-high level (JH); and 10 used sixth-grade selection (6th G) for EMP. The 31 subjects were subdivided into 17 whose native language was Indo-European (IE) and 14 others (NIE). Subgroup SL included 13 who learned English as a second language, while 18 learned English in a foreign language environment (FL). All groups and subgroups were compared on *Duncan's New Multiple Range Test* and on all 6 EMP measures. Compared to the norms for native speakers, subgroup SL made insignificantly fewer regressions, but otherwise all subgroups scored lower. In all EMP measures, the SL group ranked second to natives, while the FL group ranked lowest of all who read college materials. The IE and NIE groups did not differ, so this classification was of little use. Duration of fixations was the most distinguishing contrast between natives and all non-natives.

In number of fixations and regressions, the SL group was similar to the norms for natives but superior to FL. There were differences among the subgroups C, JH, and 6th G on most measures. A multiple regression analysis was computed between scores on the EMP and subtest scores on the ESL Placement test. Negative correlations were found between number of fixations and regressions, duration of fixations, and the ESL subtests. Average span, words per minute, and RE correlated positively. The 3 best predictors of reading skills measured by EMP were the subtests Dictation, Interview, and Total Score of the ESL. However, the coefficients of correlation were not high enough to justify using any or all of them as a measure of reading skill. The conclusion was reached that foreign students are likely to have problems in reading English, compared to natives, in college but that the problems are different.

Kintsch and Keenan (201) began an investigation of the factors affecting the way content of what is read is coded in memory. This study deals specifically with the ideational function of language, omitting textual and communicative aspects. The study had 2 aspects: free reading time, and restricted reading time. In the first aspect, the subjects were 29 undergraduates, while in the second aspect, 44 participated and were paid for their services. The materials were Set A, consisting of 10 sentences with 14 to 16 words, not related to each other, but containing 4 to 9 propositions; and Set B, consisting of 20 sentences or paragraphs in which the number of underlying propositions and the number of words were confounded. For example, one sentence contained 7 words and 2 propositions, whereas a paragraph based on 22 propositions required 58 words. Slides were made for all sentences and paragraphs. In the free reading experiment the subject read at his own rate but the time for reading and the time for recall was recorded by the experimenter. In the restricted time condition, the exposure time was controlled and was proportional to the number of words exposed. Whereas in the free reading, the overall time per word was .97 seconds, only .33 seconds per word was allowed in the restricted condition. The recall protocols for each subject of the Set A sentences were scored for propositional recall, even though the original was paraphrased. Scoring was done independently by the 2 authors, who agreed in 95.2 per cent of the protocols. Mean reading times were shown to be a function of the number of propositions in the base structure of the sentences. Subjects required about one extra second reading time for each proposition. Analyzing the number of propositions recalled, rather than

presented, the dependence of reading time upon number of propositions in a sentence was even more pronounced, as each proposition processed required about 1.5 seconds additional reading time. An estimate of the proportion of within-subject variance of reading time accounted for by linear regression upon the number of propositions recalled produced .21. The numbers of propositions presented and recalled correlated .91 in free reading time, and .74 in restricted reading time. Recall differences between the 2 conditions was greatest for sentences based upon the largest number of propositions. When reading was self-paced, 80 per cent of the propositions were recalled correctly; 86 per cent of superordinate propositions were correctly recalled. Other means of quantifying propositional hierarchies, such as number of descendants, had no effect on recall if rank (superordinate and subordinate) was controlled. The same dependence on rank was found in analysis of restricted reading time protocols. In Set B where sentence length differed, the data for each sentence were Vincentized and average reading time determined separately for trials on which 50 per cent or less and more than 50 per cent of propositions were recalled. For 19 of 20 sentences, reading time was longer when more propositions were recalled. For the longest (43-58 words) an average of 4.3 extra seconds was required to process a proposition. From the data presented, equations were developed relating to a model of processing information for recall. Also, the results were discussed, not only in relation to rate of reading, but also in relation to the "idea density" often considered important to readability.

Amato, Emans, and Ziegler (9) examined the effects of creative dramatics and story telling on interests in reading, reading achievement, self-image, creativity, empathy, and library use. Pupils from grades 4 and 5 who attended 9 public library branches participated for 28 weeks each year. At each branch, about 40 children were randomly assigned to 3 groups: creative dramatics (CD), story telling (S), and library usage (C) for control. Leaders of different groups were either the same people or matched for competency. Children's literature was the core of both experimental programs. Pretest and post test instruments for measurement were the *Pupil Attitude Inventory*, *Gates Reading Survey* (subtest Comprehension), *Self-Concept Inventory*, *Torrance's Creativity Tests*, and the *Personality Inventory*. Elementary teachers trained to give the tests collected the data. Analysis of covariance showed no significant differences among the 3 groups in interest in books and reading, or in

reading achievement. In one branch the *t*-test showed that the self-image of the S group was superior (.01) to the C and CD groups. The Verbal and Figural subtests of the creativity tests showed the S group superior (.01) to the CD group in 3 comparisons and to the C group in 4 comparisons. On these subtests, the CD group surpassed the C group in 2 comparisons but did not differ from the S group. The C group was higher than the CD group once but never better than the S group. Considering empathy, one branch showed the S and C groups (.05) superior to the CD group. Library attendance of all branches during the first year was significantly (.01) higher in both S and CD than in the C group, with no difference between S and CD groups. The conclusion was reached that neither story telling nor creative dramatics improved children's interests or achievement in reading, but both tended to have a positive effect on the use of the library. In some instances story telling influenced positive self-image, empathy, and creativity to a greater extent than did creative dramatics.

IV-14 Factors related to reading disability

Vellutino, Steger, and Kandel (398) attempted to demonstrate that reading problems manifested by poor readers are more a result of dysfunction in some aspect of verbal mediation (encoding) than dysfunction in visual perception, as posited by Orton and others. A group of 34 poor readers and 34 good readers comprised the sample. Poor readers were referrals to a learning disabilities center and had received one or more years of reading remediation. Good readers were judged by school personnel to be making satisfactory progress in reading. Children with gross physical and neurological defects, auditory and visual acuity problems, emotional problems, and frequent absences from school were excluded from the study. Further, children who did not obtain a Verbal or Performance IQ of at least 90 on the WISC were dropped. Additional screening required the good readers to be at or above grade level and the poor readers to be at least 2 years retarded in oral and silent reading, as measured by the *Gilmore Oral Reading Test* and the *Metropolitan Silent Reading Test* respectively. The 2 groups were also administered a 35-item phonics decoding ability test and word lists from the *Spache Diagnostic Reading Scales*. In terms of mean age, the poor readers were .5 years older than the good readers (12.1 and 11.6 respectively). Differences between the 2 groups were significant ($p < .05$) for Verbal IQ and all measures of reading achievement. Equal numbers of

subjects from the participating schools were tested individually to control for differences in SES. The experimental task required subjects to copy from memory various stimuli presented tachistoscopically. Stimuli consisted of 3 familiar designs, two 3-digit numbers, 3 scrambled letter sets (judged high in confusability), and 12 words from the Thorndike-Lorge Word List. Results, as hypothesized, indicated no differences between groups in reproducing designs and numbers. No differences were uncovered between groups in reproducing scrambled 3-letter sequences; however, the good readers were significantly ($p < .05$) better in reproducing scrambled sequences involving 4 or more letters. Inversion errors in the medial position were more frequent in poor readers. In the oral word reproduction task, both groups were able to reproduce from memory more words than they could read accurately; however, the discrepancy between performance of these 2 tasks was significantly ($p < .05$) greater for poor readers. A parallel finding existed in terms of word copying performance. Finally, no differences existed between groups in number of words correctly defined, indicating that variability in findings could not be attributed to disparities in word knowledge. The authors discuss the findings relative to the question of whether reading disability is best viewed as a cognitive or a perceptual disorder.

Guthrie (135) examined the intercorrelation matrices of normal 8-year-old readers, normal 7-year-old readers, and disabled 9-year-old readers on the phoneme-grapheme association skills related to 2 models: assembly and systems. The test used was the *Kennedy Institute Phonics Test* (KIPT) which contains 15 subtests, each of 20 items, and is criterion-referenced. Reliabilities of 2 subtests, Letter Naming and Syllabication, were too low to be considered (.22 and .20). Only 8 of the 15 were used to test the 2 models. The disabled readers were given the *Wechsler Intelligence Scale for Children*; the normals were given the *Peabody Picture Vocabulary Test*. IQ's of the 3 groups, disabled, young normals, and old normals, were comparable. Reading grade on the Gates-MacGinitie was equivalent for the disabled and young normals but much higher for the old normals. The subtest coefficients of intercorrelation for the older and younger normals were generally quite high but lower for the retardates. The critical difference was that the production skills were much more closely interrelated for normals than for retardates. Analysis of variance also showed significant effects for subtests but not for groups. A significant difference was found between scores on

the subtests when old and young normals were compared but not when young normals and retardates were compared. These results are interpreted to support the system model of the development of subskills rather than the assembly model. The variability of the correlations among retardates only suggested that one or 2 of the simple skills might be relatively strong but the complex skills would be weak.

Gascon and Goodglass (121) examined the effects of richness of make-up of visual and auditory stimuli on associative learning of third-grade retarded readers and normals. The mean IQ's on the *Wechsler Intelligence Test for Children* were 114.4 for retarded readers and 113.6 for normals. Respective mean reading scores on the *Stanford Achievement Tests* were grades 1.79 and 3.72. A questionnaire was submitted to parents of both groups. The experimental materials were 12 nonsense syllables of low auditory information (*i.e.*, esh, ib) and 12 of high information (*i.e.*, clarf, frag). Twelve meaningless visual configurations, consisting of ink scrawls, of low visual information and 12 of high information were made of clay with 2 surfaces painted in contrasting colors. All were photographed and arranged in 6 sets, each containing high auditory-high visual, high auditory-low visual, low auditory-high visual, and low auditory-low visual pairs. The procedure consisted of familiarization (repeating each syllable after the examiner), associative naming (expose visual symbol and provide the name of the auditory associate), and recognition. The series was presented 5 times in random order before the test trial. Score for each item was errors. Recognition followed all associative naming practice. The 4 visual stimuli were placed on the table to be pointed out as the examiner named them. Scores were failures in recognition of objects. The results showed that normal readers made fewer overall errors but only the auditory poor-visual rich differences were statistically significant (.05). Analysis of variance showed that the visual dimensions contributed differentially to the entire population. The names for the letter-like stimuli produced significantly (.01) more errors than for the object-like stimuli. No significant advantage was found in enriched auditory stimuli. Results on the recognition test showed that normals made fewer errors in all categories than retardates but only the difference between the groups on auditory-rich and visually-poor was significant (.01). Analysis of variance showed that the visually rich stimuli were recognized more frequently by both groups than the visually poor stimuli, but the effects were more marked among retardates. Family history showed no

differences but teachers' checklists revealed overwhelming preponderance of deviations for retarded readers under "Learning Behavior," "Motor Behavior," and "Social-emotional Behavior."

The relationship between visual-perceptual factors and school achievement in learning disabled children was the subject of an investigation conducted by Black (29). Subjects were psychological referrals from Massachusetts possessing a WISC Verbal Scale IQ above 85, a test score of more than .50 years below grade level on one of the *Wide Range Achievement Test* subtests, and a history of academic failure. Subjects were delineated as high- or low-perceiving, using a cutoff score of 90 on the Frostig Perceptual Quotient. Thirty pairs of subjects resulted; they were matched on variables including age, school grades, SES, verbal intelligence, and sex. Each pair of subjects differed significantly only in perceptual ability. Reading achievement was defined by word recognition ability as measured by the *WRAT*. An ANCOVA was used, with the *WISC* Full Scale IQ as the covariate, to control the effects of varying intelligence between groups. The mean reading achievement of low-perceivers was significantly ($p < .05$) higher than that of high-perceivers (retardation level was $-.927$ and -1.007, respectively). No differences were uncovered regarding spelling or arithmetic. No significant correlations were found between *WRAT* subtests of reading and spelling and subtests of the *Frostic Developmental Test of Visual Perception*. The author concludes that the low relationship between perceptual abilities and achievement in this study may have been due to 1) the high mean age of subjects (8 years), and/or 2) the fact that the contaminating factor of intelligence had been removed. Discussion of the utility of visual-perceptual evaluation and remedial procedures with learning disabled youngsters is provided.

Levin (223) reasoned that within the framework of the *Aptitude Treatment Interaction* model (ATI) and Weiner and Cromer's "deficit-difference" conceptualization of poor readers, different kinds of visual organizers would be differentially effective for children of varying reading ability. The 54 fourth grade subjects were from a lower-middle class, semi-rural area in the Midwest. The comprehension and vocabulary subtests of the *Iowa Test of Basic Skills* served as the screening device; students above grade level in comprehension became the good readers (about one third of the total sample), while those below grade level were defined as the poor readers. Poor readers were further delineated as "deficit" poor readers if their vocabulary scores were more than one year below grade

level, or "difference" poor readers if they were above a 1.0 vocabulary retardation level. Essentially, this screening created the traditional grouping of high, average, and low readers. Two 12-sentence story passages were constructed; then, two 12-picture cartoon sequences that became the pictorial equivalents of the passages were produced. Each was presented with either a sentence or picture on a 5 × 8 card, with all cards assembled into booklets. All subjects were tested individually, with half of the printed text subjects receiving additional instructions for visually imagining the story. Following the task, each subject responded to 13 comprehension questions, emphasizing the content of and temporal development in the story. Imagery instructions were significantly facilitative ($p < .01$) while the pictorial representation was not, and good and poor readers differed significantly overall ($p < .01$), while the 2 types of poor readers did not. Instructions to use visual imagery were significantly more facilitative for difference poor readers than for deficit poor readers ($p < .025$). The author further discusses the importance of the ATI model to research involving the use of pictorial aids and imagery training.

On the basis of arguments concerning the nature and implications of regressive eye movements, Rubino and Minden (331) compared the eye-movements of 23 learning disabled and 23 normal children. Learning disabled subjects were referrals to a summer program for such children and were selected for study on the basis of at least a one year deficit in reading as measured by the *Wide Range Achievement Test*, the fact that they did not wear glasses, and on teachers' reports concerning their reading problems. The control group was at or above grade level on the *WRAT* and did not wear glasses. Each subject was asked to read material judged appropriate for his grade level and was administered a short comprehension test. If the subject scored below 60 per cent on the comprehension measure, he was excluded from the study. The EDL-Biometrix Reading Eye Movement Monitor was used to measure 1) fixations, 2) regressions, and 3) span of recognition, 4) duration of fixation, 5) words per minute, and 6) directional attack. Data analyses for the 2 groups, using *t*-tests, indicated significant ($p < .05$) differences in favor of the controls for number of fixations, span of recognition, number of words per minute, and regressions. Duration of fixation and directional attack were nearly identical for the 2 groups. The author discusses these results in light of other eye-movement research, and cautions that the question of causality remains unanswered.

Naidoo (277) conducted a study of children with difficulties in learning to read and spell, but who were otherwise normal in terms of intelligence, physical development, and emotional adjustment. A total of 98 dyslexic boys were chosen for study from a sample of 271 who were examined in a clinic setting. All subjects possessed at least a Full Scale WISC IQ of 90, and no subject was below a Verbal IQ of 85. Two groups of dyslexics were identified: 1) 56 boys who were retarded in reading at least 2 years as measured by the *Neale Analysis of Reading Ability* and the *Schonell Graded Word Reading Test*, and 2) 42 boys who were retarded in spelling at least 2 years as measured by the *Schonell Graded Spelling Test*. Both groups were matched for age, sex, and type of school attended with non-retarded controls. All subjects were drawn from predominantly middle class areas. Data were subsequently collected from parents, schools, and medical and psychological examination; where possible, obstetric reports were obtained. Assessment procedures were designed to serve 2 functions: 1) to establish the presence, severity, nature, and causes of the learning difficulty, and 2) to establish alternative teaching methods appropriate for each child's specific learning problem. Besides measures of intelligence, reading, and spelling, a number of additional measures were utilized with subjects: 1) the *Wepman Test of Auditory Discrimination*; 2) a measure of articulation which required subjects to name pictures, the names containing a wide range of phonemes, vowels, and consonants; 3) the *Monroe Phoneme Blending Test* which measures sound blending ability; 4) the *Benton Visual Retention Test* which assesses the ability to remember and reproduce visually presented forms; 5) the *Oseretsky Test of Motor Ability* which provides measures of balance, upper limb coordination, manual dexterity, whole body coordination, and simultaneous movement; 6) a measure of right/left discrimination and directional confusion; 7) measures of laterality including the *Harris Test of Simultaneous Writing*, and measures of eyedness, footedness, and cross-laterality; and 8) 2 neurological measures of finger differentiation. Environmental conditions of subjects were also assessed including mother-child separations, socio-cultural deprivation, and parental interest in the child. The results showed that the majority of the dyslexic boys and controls came from upper SES levels, and that the majority of dyslexic subjects came from families with a history of reading difficulties. There were no differences in behavioral disorders at home among groups; however, school reports showed more behavior problems among reading retardates were

reported more often at school. Delay in speech development, articulation difficulties, and early clumsiness were more frequently reported for dyslexics. Reading retardates also had a higher incidence of ambiguous hand dominance than other groups. Reading retardates further scored low on tests of sound blending and WISC subtests of Information, Arithmetic, Digit Span, and Coding. No differences between dyslexic groups were observed for WISC subtests of Comprehension, Similarities, Digit Span, Picture Completion, Picture Arrangement, Object Assembly, or Visual Retention. When cluster analysis was computed, no clear clusters or groups emerged to show well defined subgroups. Generally, there were more similarities than differences between dyslexic subgroups, exemplified in the finding that both dyslexic groups tended to acquire language later than controls. Additional findings and discussion are provided by the author.

Boder (37) studied a sample of 107 subjects, aged 8 to 16, who were retarded in reading and spelling at least 2 years on the *Jastak Wide Range Achievement Test*. Subjects were considered normal in intelligence, as measured by the WISC, and they exhibited no visual, auditory, neurological, psychiatric, or general health problems. The purpose of this investigation was to validate a diagnostic screening procedure for classifying dyslexic children into 3 subtypes based upon reading-spelling patterns and to explore the implications of this procedure as a system for classifying dyslexic children for early prognosis and remedial management. The screening procedure first involved administering graded word lists of 20 words each in flash and untimed situations, in order to make a determination of word analysis-synthesis skills utilized by subjects. Secondly, a spelling test requiring the child to write both known and unknown words based upon the child's performance on the *Word Recognition Inventory* was given. The spelling test was designed to provide information concerning how well subjects could revisualize known sight words, and to what extent subjects used phonetic equivalents in spelling unknown words. Finally, supplementary tasks measuring subjects' auditory and visual sequential memory and ability to recognize and reproduce letters, use context in reading, and divide words into syllables were administered to confirm subtypes and offer additional information for remedial teaching. On the basis of diagnostic data, 3 subtypes of developmental dyslexia were identified: 1) dysphonetic dyslexia, reflecting a primary deficit in symbol-sound integration, 2) dyseidetic dyslexia, indicating a primary deficit in perceiving words

and letters as configurations or visual gestalts; and 3) mixed dysphonetic-dyseidetic dyslexia (alexia) reflecting primary deficits in both general areas. Of the total sample, 67, 10, and 23 were classified as dysphonetic, dyseidetic, and mixed dyslexics respectively; 7 subjects remained unclassified. Additionally, of 16 sets of siblings in the study, 14 fell into the same subtypes. The author provides additional discussion of 1) scoring procedures that were utilized, 2) specific reading-spelling characteristics of children within each subtype, 3) a comparison of reading-spelling patterns with classic dyslexic errors as diagnostic criteria, and 4) implications for instruction and teaching.

Larsen, Tillman, Ross, Satz, Cassin, and Wolking (220) administered a battery of tests to 100 children who had been referred by medical personnel to a learning disabilities clinic in Florida. On the basis of test and referral information, the children were grouped in order to determine if subgroups exhibited differential performance on evaluative instruments when compared to the remainder of the sample. The total group had a mean age of 10 years, a WISC Full Scale IQ of 104, and averaged one year below grade level in reading and one year above grade level in listening comprehension on the *Spache Diagnostic Reading Scales*. Physical development was judged abnormal in 10 subjects, and 23 subjects were judged neuropsychologically abnormal. WISC patterns were studied, indicating that 26 subjects were high in Performance IQ while only 14 were high in Verbal IQ. ("High" in either group was defined as at least a 10 point difference between Performance and Verbal IQ.) Of the total sample, 43 had been retained at least one grade in school, 45 were judged low achievers in reading, 14 came from broken homes, 28 had more than 2 siblings, and 37 were judged to be comparatively low in financial status. Once descriptive data were collected, *t*-tests and the *z* test for proportions were used to compare subgroups to the remainder of the sample to see if any measures could discriminate any subgroup. Three measures differentiated grade repeaters from nonrepeaters; repeaters were significantly lower on Full Scale IQ, listening comprehension, and oral reading. The 45 low reading achievers had significantly fewer cases of abnormal EEGs and were significantly lower in listening comprehension. Analysis of groups formed on the basis of WISC scores indicated that subjects high in Performance IQ (in relation to Verbal IQ) had significantly more visual abnormalities. Subjects were also given a battery of neuropsychological tests including motor speed and patterning, lateral awareness, and CNS integrity; only abnormal EEGs were significant

in discriminating these subjects. Among those subjects who exhibited visual problems, significantly more were also judged to be slow in physical development. With those subjects judged high or low in financial status, only oral reading discriminated between groups with the low group lagging on this measure. The authors suggest caution in generalizing from the results of this study since the subjects were a highly select group from higher economic levels. Additional discussion is provided regarding the overall utility of the measures used in discriminating low achievers in reading, and the fact that many children in the sample were misdiagnosed by pediatricians and general practitioners.

Kay, Tittle, and Weiner (191) confronted the problem of choosing screening instruments to identify college students who might profit from remedial help in reading. The use of students' high school grades and batteries of college entrance and achievement tests were ruled out as impractical. A total of 5 high schools, each representing different achievement levels, participated in the pilot study. Five measures of reading were employed, with paid subjects at each school randomly assigned to each measure. The measures were 1) the *Davis Reading Test* (junior high level), 2) the *Stanford Reading Test* (high school level), 3) the reading subtest of the *Sequential Tests of Educational Progress* (junior high level), 4) the reading subtest of the *Sequential Tests of Educational Progress* (high school level), and 5) the *Stanford Advanced Reading Test* (junior high level). Subjects also responded to a questionnaire about high school grade average, opinion of the particular reading test taken, and perceived need for remedial reading help. Students judged the junior high level reading tests to be too easy; students judged the *Davis Reading Test* (high school level) too difficult more often than the high school level *Stanford*. Low correlations were found between reading test scores and perceived need for remedial help; lower correlations were obtained between high school grades and reading test scores. On the basis of the pilot study of 461 high school students, the *Stanford High School Reading Test* was chosen as the reading screening instrument. A subsequent administration of the *Stanford* to 31,635 incoming freshmen 3 months later indicated that the pilot subjects scored an average of 2.82 raw score points lower than the new freshmen. The value of the pilot study in choosing reading screening instruments is discussed.

Rowell (328) identified 40 disabled readers attending a summer corrective reading program in Florida in investigating the relationship among sex, SES, reading achievement variables, and

attitude toward reading. Subjects were chosen randomly from a total of 16 corrective reading classes; 30 additional subjects who had enrolled in the summer program but dropped out, were designated to be the control group. Both groups were found to be comparable in terms of age, SES, IQ, and grade level distribution. The *Silent Reading Diagnostic Tests* and alternate forms of the *Gates Basic Reading Tests* were used as pre- and post-measures of reading achievement. Attitude toward reading was assessed with *A Scale for Reading Attitude Based on Behavior*, an experimental instrument designed for use with poor readers and utilized in previous research. The attitude scale requires the observer to record student responses to a variety of reading situations, and was used with subjects over a period of several days; control subjects were assessed before the end of school in May. Results indicated that the corrective program brought about a large mean gain in attitude among students participating in the reading program that remained statistically significant ($p < .05$) into October, when the attitude scale was readministered. Girls in the study had a higher mean attitude gain than boys, although not statistically significant. The experimental group's mean achievement scores were higher on 15 of the 16 subtests administered. On the SRDT, subjects achieved significantly ($p < .05$) better scores in recognition of words in isolation and in context, location of word elements in words, syllabication, recognition of pronounced word elements and beginning sounds, and recognition of rhyming sounds and letter sounds. On the GBRT, experimental subjects achieved significantly higher on only the Reading Vocabulary subtest. Correlations between attitude change and reading achievement were significant ($p < .05$) for recognition of words in isolation, syllabication, letter sounds, and level of comprehension. Correlations among attitude, age, and SES were near zero. Change in attitude toward reading was not heavily dependent on achievement in any particular reading skill.

Camp (49) examined the learning rates of 46 retarded readers in relation to long term retention to determine the predictive values of error rates, lesson by lesson, and to identify abnormal patterns if they occurred. The subjects were 46 children between 8 and 18 years referred for tutoring. Their IQ's, on individual tests for the most part, were 75 or higher. All subjects took the *Wide Range Achievement Test* and only those scoring below grade 3.0 in reading were included. The materials were the SRA Reading Laboratories 1a, 1b, and 1c. Subjects began at a level determined by the achievement

test. Sixteen tutors were trained by the researcher to record all errors produced by each child in each lesson, as well as the necessary procedures for moving from one lesson to the next. Motivation was tokens for correct response during a half-hour lesson. At the end of each 20 lessons, a vocabulary retention test was given over the words taught during those lessons. A total of 65 complete sets of 20 lessons and retention tests were done for the 46 pupils. Acquisition curves were prepared by plotting the cumulative error score against the cumulative total number of words presented as each lesson was completed by each child. The curves showed initial acceleration from a common origin followed by gradual deceleration, which is similar to "normal" learning curves. The rank order of pupils changed very little after the first 6 lessons. Rank order coefficients of correlation between the errors on the first 6 and the 20 lessons were .98 for lessons 1-20; .93 for lessons 81-100; and .85 for lessons 101-120. To determine measures on the first set of lessons to predict success on the second set, combined learning rate and vocabulary retention scores correlated significantly with performance on the next set; but neither alone was adequate. To determine whether error rates on early lessons could predict performance on later ones, only those scores from lessons 1-20 were used. A ratio of total errors to number of words presented less than .21 by lesson 6 demonstrated adequate learning rates on the next units. All children with error rates of .25 or higher showed inadequate progress thereafter. Error rates between .21 and .24 were not clear cut.

Liberman, Shankweiler, Orlando, Harris, and Berti (228) explored the relationship of sequence and orientation reversals to each other and to other selected aspects of reading mastery. The subjects were the lower third of second grade pupils in an elementary school, based on their performance on a 60-item word pronunciation list. Of the group, 15 were boys. Their mean age was 8.25 years; the mean *Wechsler Intelligence Scale for Children* IQ was 98.6. The Word List included only monosyllables from primer level sight and non-sight words, as well as word-forming reversibles of both sequence and orientation. Each word was printed on a card and administered individually and recorded on tape as well as by an investigator. It was given at the end of the school year and again the first week of the next school year. A second measure was the *Gray Oral Reading Test*, Form A. A third test was tachistoscopic presentation of 100 items, presented at 1/125 second. The exposed letter was matched to one of a group of 5, including 4 reversible letters (b, d, p,

g) and one non-reversible letter (e). There were 20 items for each letter. Responses to the Word List were scored both from the transcript and from the tape. They were scored as 1) reversal of sequence (RS), 2) reversal of orientation (RO), 3) other consonant errors (OC), and 4) vowel errors (V). Total errors was the sum of the 4. The first finding was that nearly all reversals were found among the 18 subjects selected for study. However, reversals accounted for a relatively small proportion of all errors: RS 10 per cent, and RO 15 per cent. The OC errors were 32 per cent and V errors, 43 per cent. Individual differences were large: RS errors ranged from 4 to 19 per cent, RO errors from 3 to 32 per cent. The test-retest reliability for total errors was .83; for OC, .69; for V, .64; for RS, .43; and for RO, .50. The reversal errors were not as stable as others. The total errors on the Word List correlated .77 with the score on the Gray paragraphs. This relationship suggested to the authors that the major problem was decoding of the words, whether in isolation or context. The OC errors correlated .73 with the V errors. The OC errors also correlated .71 with the Gray score and the V errors correlated .75. In contrast, RS and RO errors correlated only .03; RS with OC, .72; RS with V, .56; RO with OC, .09; and RO with V, .20. Of interest was the finding that errors in reversible letters is specific to words because there was only a mean error of 7.4 per cent of such errors when the letters were exposed rapidly. An examination of the nature of the confusions showed that *p* was given for *b* more frequently than was *d*. The letter *g* was rarely chosen. At least twice as many errors occurred on *b* as on *d* or *p*. While *b* offers 2 opportunities for a 180-degree transformation, it also offers 2 opportunities for error by a single articulatory feature (place or voicing), whereas *d* and *p* offer only one opportunity of each type. One conclusion reached was that the problems of the beginning reader are more closely related to word construction than to strategies for scanning connected text as Orton had postulated.

Bakwin (18) examined 676 same-sex twins of both zygosities in an attempt to provide additional evidence concerning a genetic component to reading impairment. Reading disability was defined to be a reading level below expectation when compared to the child's performance in other school subjects. Subjects were from middle income families in or near New York City; all attended public schools. Results indicated a slightly higher incidence of reading impairment in the twins than for the general population. Order of birth and birth weight were not found to be related to reading

disability. Zygosity was found to be related to reading disability. Monozygotic twins were concordant for reading disability in 84 per cent of the pairs, and dizygotic twins in 29 per cent of the pairs. This difference was statistically significant at the .001 level. Since social deprivation was not a factor in the reading disability of subjects in this study, the author interpreted the results as supportive of the view that there exists a genetic basis for reading disability.

Warncke and Callaway (408) sought to determine the relationship between reading ability and arithmetic computational ability in a sample of 75 reading clinic referrals of average intelligence whose average age was 7.8 years. Subjects, 25 at each of 3 grade levels, were from Georgia and represented all SES levels. The measure of reading ability was obtained with an IRI used in the participating reading clinic, while computational ability was determined with *California Arithmetic Test* which measures addition, subtraction, multiplication, and division. Different levels of the CAT were used, depending upon the grade placement of the subject. All subjects were administered the WISC: mean IQ ranged from 102 to 108 for children at the 3 grade levels. Pearson product moment correlation coefficients were computed to determine 1) the relationship between reading and computational ability, 2) the relationship between actual grade placement and computational ability, and 3) the relationship, among reading ability, computational ability, and intelligence. Correlations between reading and arithmetic at grades 2, 3, and 4 were .33, .002, and .001 respectively. Higher correlations were demonstrated between arithmetic and grade placement of .39, .76, and .68 at each of the respective grade levels. Correlations at all grade levels between reading ability and actual grade placement were near zero. Correlations between reading ability and WISC IQs rose steadily with each successive grade: .51, .56, and .59.

Bogle (39) hypothesized that poor readers exhibit deviant behavior more often than normals and that a high risk population expected to exhibit these kinds of behaviors can be identified in the first grade. Cumulative record folders were studied for the total sixth grade population of one school. Reading disability was defined to be a grade level score in reading at least 2 levels below grade placement; deviant behavior was measured by counting every negative comment in the cumulative folder that related to a child's behavior. Data from reading readiness tests administered in the first grade were also correlated with deviant behavior. Data analyses indicated that a significant ($p < .001$) difference existed between children with read-

ing disability and children without disability in terms of behavior problems. Factorial Chi-Square tests further indicated that reading disability contributes most to increased behavior problems, and that no interaction factor existed. In the sample of 96 black children, 40 exhibited no reading disability; 15 per cent of these children demonstrated behavior problems. Readiness data were collected on 69 children, 43 of whom had failed the test. Of those who failed the readiness test, 31 remained with a reading disability in the sixth grade. Of the 26 children who passed the readiness test, 10 were identified as reading disabled in the sixth grade. A total of 90 per cent of the children who had behavior problems failed the readiness test in first grade, while only 2 of those who passed the readiness test were designated behavior problems. The author concludes that the reading readiness test is a good predictor of school maladjustment, especially for black males from socially and/or economically deprived backgrounds. The author further discusses the role of the school nurse in identifying those children who will exhibit behavior problems in school, and in working with the family in order to "break the failure syndrome" for the child and perhaps for the entire family.

Rosenthal (324) hypothesized that dyslexic children generally have poorer self concepts than normals, and that dyslexics whose families had some understanding of the child's reading problem would be higher in self concept than dyslexics whose families had no experience with or knowledge of reading problems. Three groups of children were selected for study: 1) 20 dyslexic boys aged 8 to 14, all of whom had been diagnosed in a clinical setting; 2) 20 normal controls who were chosen by dyslexics and family members, and subsequently matched as closely as possible by age, ethnic group, and SES; and 3) 20 asthmatic boys also matched by age, ethnic group, and SES. The asthmatic boys were included for self concept assessment since it was felt that they had an "understandable" illness. Dyslexics were further divided into 2 groups: 1) an informed group whose families were given information concerning the nature and ramifications of dyslexia 6 months prior to personality testing and 2) an uninformed group whose families were given no information about dyslexia. The *Coopersmith Self-esteem Inventory* (SEI) was administered to each subject via tape recordings, requiring subjects to listen to an open-ended statement and respond "like me" or "not like me." Teachers of all experimental subjects were asked to complete the *Coopersmith Behavior Rating Form* (BRF) for each subject in order to establish the correlation between subjective

statements and behavioral expressions of self-esteem. SEI scores were significantly ($p < .05$) higher for controls and asthmatics than for dyslexics, while mean BRF scores for the 3 groups did not differ significantly. Correlations between the SEI and BRF for the 3 groups were not significant. Within the dyslexic group, SEI scores were significantly ($p < .05$) higher for the informed subgroup. No significant correlations were observed between the SEI and BRF for the 2 dyslexic subgroups. The author discusses the insignificant relationship between the SEI and BRF, as well as the practical implications of educating families and parents about their children's reading problems.

Rutter and Yule (335) attempted to shed light on the relationship between behavioral disorders and reading achievement and on the question of which is the primary and which is the secondary defect. A total sample of 96 children, mostly boys, aged 9 to 10 was drawn from a reading achievement survey conducted in the Isle of Wight involving several thousand subjects. From the total survey sample, it was observed that about 4 per cent were severely retarded in reading; of these, about one third were defined as antisocial and of all the antisocial children who were identified, about one third exhibited severe reading retardation. Analysis of the onset of both reading problems and behavior problems indicated that the latter develop somewhat later when the disorder develops in association with a failure to learn to read. Questionnaires concerning the developmental characteristics of 72 antisocial and behaviorally retarded readers were administered to parents and teachers; these data indicated no significant or even sizeable differences in developmental backgrounds of the 2 groups. Further assessment of abnormalities in language, speech, motor coordination, constructional tasks, motor persistence, and in left-right differentiation showed no relationship between developmental defects and antisocial behavior. A subgroup of 24 good (no more than one year retarded in reading) and 22 poor readers (at least 2 years retarded in reading), all of whom were designated as antisocial, were further studied on the basis of antisocial symptoms, neurotic symptoms, home symptoms, school symptoms, and family background. Good antisocial readers had significantly more trouble sleeping and significantly more of these children came from broken homes. Poor antisocial readers came significantly more often from homes of 4 family members or more, and these children exhibited (according to parental ratings) significantly poorer concentration. The authors provide further dis-

cussion and review of related literature concerning the etiology and chronological onset of behavior problems, the relationship of behavior problems to reading retardation, the treatment of behavior problems, and developmental concomitants of reading and behavior disorders.

Lawrence (221) proposed that middle-grade retarded readers, although once deficient in basic perceptual abilities related to learning to read, may be severely hampered in their reading progress later on by secondary emotional problems and poor self concepts. A sample of 24 poor and 24 good readers from 4 schools was defined with the *Sleight Non-Verbal Intelligence Test* and the *Schonell Word Recognition Test;* personality data were obtained with Porter and Cattell's *Children's Personality Questionnaire* (The CPO was also given to a sample of 30 good and 30 poor readers to determine differences in profiles attributable to differences in reading). Six poor readers were subsequently matched with 6 good readers from each school. Paraprofessional counsellors were chosen by the head teacher at each school to work with subjects once a week for 2 terms. Results indicated that 3 of the 4 groups receiving counselling were significantly higher in reading attainment at the end of the counselling, counselled subjects showed improvement in attitudes and general adjustment as reported by teachers, reading retardation appears to affect emotional adjustment even when no overt symptoms of maladjustment exist, and that those counsellors who obtained the best results also scored highest on Cattell's *16 PF Test* ("H" Factor: socially bold, uninhibited, spontaneous behavior). Teachers in the study often named these same personality characteristics in describing deficiencies of retarded readers. The author emphasizes that such academic counselling is not likely to help the retarded reader who does not possess the basic reading skills.

Goldman and Barclay (125) studied 38 disabled readers of at least average intelligence and possessing no emotional or physical impairments, as well as their mothers in order to determine the nature and effect of mothers' attitudes on their children's reading achievement. All children in the study had been referred to a reading clinic in St. Louis; their mean age was 10.9 years. Subjects were generally from an urban middle-class environment. The WISC was administered to children in the study in order to ascertain general intellectual functioning, and to determine if these reading disabled students paralleled other retarded readers on the WISC profile. Children in the study were found to have superior verbal ability, but were

also found to be exceedingly low in retentive ability. Mothers responded to the *Parental Attitude Research Instrument* developed by Schaefer and Bell; results were compared to norms obtained with the instrument in previous research. Mothers of retarded readers were significantly different (from .05 to .001) from mothers of normal readers on PARI subscales of Strictness, Equalitarianism, Comradeship and Sharing, Suppression of Sexuality, and Encouraging Verbalization and Approval of Activity. These mothers also tended to foster a dependent relationship with their children and were not likely to encourage accelerated development. Moreover, the authors discovered that mothers of disabled readers in the present study tended to be autocratic; they encouraged infantile behavior patterns in their children, exhibited a tendency to direct and control children in a restrictive manner, and evidenced more marital conflict and general dissatisfaction with their life roles.

Rossman (327) administered a background of reading experiences questionnaire to 261 high school students defined as reading deficient; in addition, the same instrument was administered to a small control group of high school pupils of average and superior ability. Racial composition of the participating school was 40 per cent black, 50 per cent white, and 10 per cent Puerto Rican. The questionnaire consisted of a number of reading-related items, as well as an interest checklist and open-ended questions suitable for imaginative answers. Students were first asked what magazines they had read recently; however, few could name magazines besides those found in the school. Of the 261, 23 said they liked to read, 121 said they had not read a book recently, and only 115 could recall a book they had enjoyed. From the total sample, 130 said their parents had never read to them and 121 said parents read to them when they were very young. Interestingly, only 44 of those who had been read to as children could recall appropriate preschool reading materials such as *Bible* stories, fairy tales, etc. Generally, those students who could recall the title of a book they read recently were also those who had been read to by parents. Students with serious reading problems, but of average or above intelligence, exhibited little imagination in answering open-ended questions. During personal interviews and questionnaire administration, a number of students, according to the author, exhibited defensive behavior. The author calls for additional study of the emotional and sociological context in which students see reading. Finally, 169 students reported intentions to read more to younger brothers and sisters.

IV-15 Personality, self-concept, and reading

Zimet, Rose, and Camp (430) investigated the relationship between aggression and reading achievement in first and third grades, using the same pupils. Subjects were 33 children representative of a broad socioeconomic spectrum in 2 classes. At the beginning of grade 1, the *Clymer-Barrett Reading Readiness Test* (C-B) was given. At the end of that grade, the *Wide Range Reading Achievement Test* (WRAT) and the children's form of the *Rosenzweig Picture-Frustration Study* (RP-FS) were administered. By the end of grade 3, 25 of these children who remained in the city school were given the *Gates-MacGinitie Reading Achievement Tests* and the RP-FS test was given again. Coefficients of correlation showed that the C-B scores correlated significantly (.01) with the WRAT but that the RP-FS scores did not correlate significantly with either the C-B or the WRAT. By third grade, however, the first grade WRAT scores did correlate significantly (.01) with intropunitiveness (one per cent) on the RP-FS. In addition, the one per cent at grades 1 and 3 correlated significantly (.01) with the comprehension portion of the Gates test. The strength of the correlation (not given) was reported to be equivalent to the correlation between achievement at grades 1 and 3. The conclusion was reached that early development of the ability to internalize blame and responsibility may predict later reading achievement.

Cole (63) sought to discover any relationships between self concept, attitude, and achievement motivation and academic achievement. The subjects were selected from third grade classes if their IQ's on the *Otis-Lennon Mental Ability Test* ranged between 96 and 103. The pupils were given the *Metropolitan Achievement Tests* and their scores on total reading, language, spelling, and total mathematics were recorded. Eight months later, when subjects were in fourth grade, they were given the *Children's Self-Concept Index* and the *Children's Attitudinal Range Indicator*. Also, the *Classroom Behavior Inventory* was completed for each subject by his teacher. Coefficients of correlation were computed among the 3 personality and 4 achievement variables. Self concept correlated significantly with 3 achievement scores but not with spelling. Attitude yielded low and insignificant coefficients with all achievement variables. Achievement Motivation (teachers' ratings) correlated significantly with all 4 achievement variables. Total reading correlated .212 with self concept, and .318 with achievement motivation. Multiple regres-

sion showed that achievement motivation was most highly weighted for all scores except mathematics in which self concept received the highest weight.

IV-16 Socio-cultural factors and reading

Levy (226) examined the language production of black first graders to determine whether it was adequate for beginning reading. Subjects were a random sample of 20 monolingual children from low socio-economic levels. A sample of each pupil's language was obtained by offering the child several picture books from which he would select one or more books to tell the investigator stories suggested by the pictures. Each interview was taped for 30 minutes. The product was analyzed for vocabulary, T-units, and structures within T-units. The results showed that the mean number of words used was 1,523.90 and the mean number of different words was 336.25. Analyzed by syntax, the frequencies were in descending order: nouns, function words, verbs, adverbs, adjectives, and auxiliary verbs. There were 3,449 T-units produced with an average of 7.03 words per T-unit. About half of the sentences contained more than 6 words, and relatively few contained fewer than 4 words. A comparison of the mean and range of T-units was made with those reported by O'Donnell *et al.* in a middle class white population. The 2 populations were quite similar in length of T-units and in ranges. Analysis of the syntactic structures per 100 T-units showed: adjective + noun, 19.25; genitive + noun, 15.05; and adverbial phrase, 37.41. All of the subjects used all of the structures. The conclusion was reached that insofar as oral language knowledge is related to learning to read, these pupils had adequate language skills.

Karlsen and Blocker (188) explored the auditory discrimination of final consonant blends among black children, then related the findings to word pronunciation and meaning in reading. The subjects generally spoke "black dialect," but were in a good school where achievement was near national norms. The 35 girls averaged less than .1 grade higher than the 33 boys on the reading section of the *Metropolitan Achievement Test*. To determine auditory perception of final consonant blends, they were given 5 items from each of 5 forms of the experimental edition of the 1973 *Stanford Achievement Test*: Word Study Skills subtests. These items included consonant + *t*, *n* + consonant, consonant + *d*, and miscellaneous blends. The test had been shown to be easy for children at the end of grade 1, and even

easier at the end of grade 2. The national average was 22.97. These black subjects' mean score was 22.94, almost identical to the national average. No significant sex differences were found. The coefficient of correlation between the experimental test and the *Metropolitan Achievement Test* was .60, with no sex differences. An informal oral reading test showed that many children mispronounced the final consonant blends, with obliteration of final consonants preceded by the letter *l*, but that they had no difficulty with the meanings of the words. The conclusion was reached that black children perceive the final consonant blends and differentiate between words that they pronounce the same.

Two studies dealt with the effects of desegregation on reading achievement. The first investigation, by Carpenter and Gray (51), used the cloze procedure to compare black with white third graders before and one year after desegregation. The subjects were a random sample taken from 100 black and 100 white pupils in desegregated schools before and after integration. The materials were 10 passages, selected at random, 2 from each section, of a basal reader. Beginning with the third line, every fifth word was deleted until there were 50 such units. Each cloze passage was mimeographed and pupils were asked to write in one word to complete the story. The scoring was right minus wrong response (R-W) and interagreement response (Focus). The mean score in each passage was calculated; then the mean of the foregoing means was calculated. The passage whose mean score was closest to the entire set was selected for analysis and used in the retest. Analysis of variance revealed significant differences (.01) between groups in Focus and R-W both before and after desegregation. No significant differences were found between the 2 variables, Difference in Focus and Difference in R-W. Analysis of variance within groups showed that differences were significant except R-W for white subjects. Means showed that both groups progressed at approximately the same rates, but that there was less agreement among the black subjects in reconstructing the passages than among the white subjects.

The second study of the effects of desegregation, by Clark and Bradley (59), compared grade 6 black and white children who were attending segregated and desegregated schools on their reading achievement relative to ability. The *School and College Ability Tests* (SCAT) were used to measure ability and the *Sequential Tests of Educational Progress* (STEP), Reading subtest, for achievement. The subjects were enrolled in 12 schools, 8 recently desegregated and

4 segregated (3 white and 1 black). They were divided into 4 groups: black desegregated (B-D); black segregated (B-S); white desegregated (W-D); and white segregated (W-S). Subjects for whom all test data were not available and black pupils who had not spent previous school years in all-black schools were eliminated from the final groups. The pretest scores on the Verbal scale of the SCAT and on the STEP were used as covariates. The difference between the pretest and post test scores on the STEP were used as criterion measures. The F-ratio showed no significant difference between the adjusted mean change scores of black children attending segregated and desegregated schools, nor was there any comparable difference between the white groups. Similarly, no significant differences were found for all children attending the 2 types of schools. The conclusion was reached that, relative to ability, desegregation appeared to have no significant effect on reading achievement regardless of color or type of school.

Wulff (422) compared critical thinking ability of disadvantaged and advantaged pupils in grade 6. Two groups of disadvantaged subjects were included. The first group was Appalachian children from a rural or non-city area who resided in a poverty area. The second was black students who resided in an urban poverty area. The advantaged group came from a metropolitan city. From each of the 3 populations for whom complete test data were available, a random sample of 100 was chosen. The Academic Ability and Reading Achievement subtests of the *Ohio Survey Test* were given to all pupils. The *Taba Social Studies Inference Test* and the *Application of Principles Test*, also by Taba, were given to determine their abilities to think critically. The Wilk's Lambda test of multiple discriminant analysis was applied and was not significant. Therefore, the 3 groups were not equal in terms of the centroids. The 9 variables (Ohio Survey-2, Application of Principles-7) were tested by univariate analysis and all except the Overcaution subtest yielded significant F's. In academic ability, the advantaged mean was 19.89 points higher than the rural Appalachian mean and 30.72 points higher than the urban group. The same trend was found in the Reading Achievement subtest. In ability to generalize, the same trend appeared but differences were much smaller. The disadvantaged urban group had higher mean scores in subtests Error and Over-generalization; the Appalachian group ranked highest in Overcaution. The partial correlation between Social Studies Inference and Reading, with Academic Ability held constant, still showed superior-

ity of the advantaged group, as did the partial correlation between Application of Principles and Reading. The conclusion reached was that the disadvantaged students studied had not properly learned the 2 elements of critical thinking—the ability to draw inferences and the ability to make generalizations.

Fry and Johnson (114) examined the relationship between oral language and reading achievement among 2 groups of American Indian children. The subjects were Pima-Maricopa Indian pupils attending a public school and another group attending a BIA Day School nearby. The *Lorge-Thorndike Intelligence Test*, Primary I or II battery and the *Metropolitan Achievement Tests* (MAT), Primary I or II batteries were given to both groups. Those 62 who completed the tests were divided into 2 subgroups based on the median of the Comprehension subtest of the MAT. The above average (AA) group scored grade 2.0 or above, while the below average (BA) group scored 1.9 or less. A sample of each subject's oral language was obtained in responses to 20 pictures and tape recorded, then transcribed. Following Strickland's procedures, the protocols were divided into phonological units (PUs). Each was then divided into communication units (CUs), a grammatically independent clause with any of its modifiers. All other PUs were classified as mazes. Since a minimum of 30 CUs seemed essential, all subjects were eliminated who had not produced that many, leaving 52 in all. To maintain proportionality of sex between groups, 10 others were randomly removed. The subgroups included 12 AA females, 12 AA males, 9 BA females and 9 BA males. An analysis of variance on chronological age and on intelligence showed significant differences. Correlations between IQ and reading were .47 in the AA group but −.01 in the BA group. They were highest among females and insignificant in all groups of males. IQ seemed to have some predictive value for Indian girls but none for boys. To assess Sex × Reading Group interactions in oral language, 24 variables with high frequency of occurrence were tested by 2 × 2 ANOVAs. There were no main effects for sex and no significant interactions. However, one main effect of reading group occurred for the 12-sentence pattern. BA groups used the simple short pattern about twice as much as AA groups. Nine variables not used by 20 subjects were dichotomized and tested with Chi square. More subjects in the AA group made use of conjoining verbs than those in the BA groups. Another pattern was used more often by boys but it was independent of reading groups. The conclusion reached was that

there was minimal relationship between oral language and reading achievement among these children.

IV-17 Reading interests

Johnson (185) summarized the data obtained from the National Literature Assessment Survey. The results were divided into 3 areas: attitudes, involvement, and reading inventories. Each area was intended to give a profile of America's reading habits or feelings. Subjects included about 90,000 different individuals, selected to be representative of the country's population, only a part of whom did different exercises. First, concerning attitudes, about 4 out of 5 at age 17 years and young adults (26-35 years) reported that literature had great value for them and 3 of 5 explained what it was. Most of the responses were utilitarian, from which 6 categories emerged: 1) exposure of the reader to other points of view; 2) leads to greater self-awareness; 3) helps to create an ability to evaluate critically; 4) teaches people to think; 5) is entertaining; and 6) helps build vocabulary and writing skills. The proportion of responses in each category dealing with attitudes of the 2 older groups was quite similar with 2 exceptions. More at 17 years than adults placed value on other points of view and twice as many adults as 17 year olds cited learning how to think and evaluate critically. Those at age 13 tended to respond that literature improved language and was important to their future. Involvement was determined by books read, others read by the same author, and experienced literary works as plays, movies or on television. A majority of those who reread books said that they did so for enjoyment. Slightly more than half of teenagers and about 2 of 5 young adults reported titles of books they had reread. Also, 37 per cent of age 13, 46 per cent of age 17, and 51 per cent of young adults said they had read another book by the same author and named the authors. Moreover, 3 of 4 of the 17 year olds and 3 of 5 of age 13 and adults had sought a play, movie, or television show as a result of at least one literary work read. The inventory aimed to determine the kinds of literature read. Eight categories were established and when titles were requested, respondents had read in each category as follows: age 13, 86 per cent; age 17, 87 per cent; and young adults, 76 per cent. More than 7 of 10 in the upper 3 age groups reported having read novels or long stories outside school. Adult popular fiction, including best sellers, was read by more than half in the 2 upper age levels but only about 14 per cent of those age 13 years. The

next most popular category was adult/young adult classics, for older subjects, but for 13 year olds, it was young people's or children's literature. Of the other categories, biography was read by about half in each age group. Proportions reading poetry and giving titles were ages 13 and 17, about 1 in 4; and young adults, near 1 in 5. For 9 year olds, the questions differed. In all, 65 per cent reported titles of books that told a story: 1 of 3 named at least one poem; and 36 per cent named biographies. Also, 46 per cent gave titles of magazines read. Further analysis revealed that females read more than males, whites read more than blacks, people in suburbs read more than those in the inner city, and those whose parents had higher educations read more than those whose parents had lower educations. Analysis of the last difference showed that the difference increased with age.

Beta Upsilon Chapter of Pi Lambda Theta (27) undertook a cooperative study of children's reading interests. A Reading Interest Form was prepared to include vital personal information and the title and author of a book the child had read. Open-ended statements permitted children to make comments about why they liked or disliked the book and finally, "I like to read about . . ." Each member was asked to secure 10 replies, so little is known about the source of the sample. Ages below 7 and above 12 years were eliminated due to insufficient numbers, leaving a total of 811 respondents. The results follow: 7-year-old boys liked humor and illustrations, mainly about animals, while girls chose a good plot, also about animals; 8-year-old boys liked funny stories about animals, science, and history, while girls liked funny books that were exciting, especially about animals. Nine-year-old boys liked humorous and imaginative literature, again about animals, but also, transportation, science, and sports; girls liked character and plot with topics including animals, mysteries, and people. Ten-year-old boys liked excitement in books about animals, mysteries, and science; girls liked funny books about animals, mysteries, and people. Eleven-year-old boys showed great interest in content but not plot or characters. They liked mystery, animals, transportation, sports, and science; girls were concerned with plot and characters with a strong preference for mystery, followed by animals, people, and make-believe. Twelve-year-old boys liked an exciting plot and good characters, including both fiction and non-fiction. Animals and science were liked most. Girls, at this age, attended primarily to content and plot, with chief interests in animals, mystery, and people but a wide variety of other topics too. Older

children were more critical of books than younger ones: Interest in mysteries increased from younger to older ages.

Ojala and McNeill (282) made an informal survey of movies, television shows, persons admired, magazines and novels liked, and other kinds of books liked among students in 3 schools. School A was innercity but with over half of the 2,500 in grades 9 through 12 of Anglo families. School B enrolled students in grades 6 through 9. Both schools had a wide range of reading achievement. School C was a small private school from which data for grades 7 through 12 were collected. The instrument was a questionnaire including 6 questions to obtain information related to the purposes noted above. Apparently the questionnaire was given by the authors in the classes where they had student teachers. The resulting data were tabulated and presented for each sex in each grade in each school. For this reason, only a few generalizations can be included here. First, although there was some mutual interest, there was wide variation in response to all questions. For example, in School A, 225 different movies were chosen as "best liked"; 129 television programs; 206 persons liked or admired; 132 magazine titles; and 211 different books liked. The persons admired was an attempt to identify heroes, so answers were grouped. Singers and singing groups ranked first and second in Schools A and B but did not appear in School C. Movie and television personalities tended to rank high, as did sports figures, as well as individuals. Second, the highest response to novels liked in all 3 schools was "none." Others listed were frequently those assigned in school. Third, *Summer of* '42 was the most popular movie, although younger students did not select it as often as did older ones. Fourth, *Night Gallery* was the favorite television program for all 3 schools regardless of age or sex. Other than *Life* magazine, choices of favorites tended to be influenced by sex. Finally, student interest in reading mystery stories continued to be high while non-fiction, science fiction, and biography still appeared to be important types of books.

Another survey of the reading interest of high school students was carried on over 5 years in Tokyo by Hiraga (162). This report is from a summary written in English. The response rate to the questionnaire was 93 per cent. Of the responses, 96 per cent replied that they read, daily, either books, magazines, or newspapers in addition to textbooks. The time spent ranged from 15 minutes to more than 3 hours with an average of 53 minutes daily. Also, an average of 47 minutes was spent with radio and television programs.

They averaged 3.1 books per month, although there was a steady average decline from 4.1 books in 1967 to 1.8 books in 1971. They used different media for different purposes: newspapers for current information (56 per cent); magazines for tastes and hobbies (42 per cent); radio for amusement (48.5 per cent); and books for culture and study (71.4 per cent). Approximately 50 per cent of students read their own books, while 35 per cent borrowed books. They reported insufficient time as a major problem interfering with free reading as their "studies" and "club activities" took up an increasing amount of time as they progressed through school.

Feeley (102) investigated middle-grade children's interests by using an inventory of fictitious, annotated titles and developed categories by factor analysis of responses, and related them to viewing interests and sex. The major tool was the inventory which permitted children to rate their interests in a given title on a scale of 4, then asked if they would read it, watch it, or do nothing. The pool of 130 items was developed, and 50 were selected because they could occur in print and on television. A pilot study with 196 subjects permitted checks on the format and factor analyses of responses. The inventory was given to 250 boys and 282 girls in grades 4 and 5 in a single school system. Each item was read by the investigator as the subjects followed and responded to the like-dislike scale, then to the media scale. Interest scores and media preference (Read and Watch) scores were computed for each subject. Socioeconomic (SES) data were obtained according to the Index of Socioeconomic Status. In order to group the 50 items into valid clusters for degree of interest, responses of boys and girls were separately subjected to principal components factor analysis with varimax rotations. The emerging factors were named according to the items that loaded .30 or higher on them. Based on the domain sampling model by Nunnally, only those clusters with an R_{tt} of at least .70 were considered valid. Those that emerged were rank ordered by mean scores to determine popularity. For the boys, 8 significant factors were found which accounted for 45 per cent of the total variance. For the girls, 9 factors accounted for 50 per cent of the total variance. In ranked order, the boys' average cluster scores were sports, excitement-fantastic, recreational, excitement-realistic informational, fantasy-comedy, social empathy, and artistic. Comparable cluster scores, ranked for girls were: social empathy-people and problems, recreational, hobbies-artistic, excitement-realistic, social studies, science, and sports. The conclusion was reached that sex was a major determiner of children's con-

tent interests. Rank order of Read and Watch clusters were similar for boys except that information ranks second in Read and fifth in Watch. The first 5 for girls were ranked the same in Read and Watch but hobbies—arts and social studies—ranked higher in Read than in Watch. However, the Watch mean scores were consistently higher than the Read mean scores. Two-way analysis of variance (Race × SES) of the boys' and girls' interests and media preferences revealed one important difference: lower-SES groups ranked fantasy higher than did other groups, and this was especially true for girls. Three-way analyses, including Read and Watch revealed that girls' Read scores were higher than boys' and that lower SES children had a Watch score significantly higher than those of the other 2 SES levels.

Estes and Vaughan (98) explored the effects of interest on reading performance as measured by the *Informal Reading Inventory* (IRI). The subjects were randomly selected from classes of 2 schools, except that their reading level was required to be at least 4.0 in April of their fourth grade year. The materials were 6 passages dealing with different areas: folk tales, animals, sports, space, mystery, and foreign lands. These materials were chosen from basal readers and matched, according to the Dale-Chall readability formula, at grades 5.4-5.6. Ten comprehension questions were designed to measure retention of facts, inferences, main ideas, and vocabulary. Each subject was asked to choose the topic he would like *most* and *least* to read about. Each subject read the 2 selections and answered the questions. The average high-interest comprehension score was 86, and the average low-interest score was 67. The *t*-test showed that the difference was significant (.001). The conclusion was reached that interest was a potent factor in comprehension.

Three reports of voluntary reading of secondary school students in England are considered together since they are based on the same sample of students and each supplements the others. Taylor (386) randomly selected 12 boys and 12 girls from every class, for each of 4 years, from 2 secondary modern and 2 grammar schools. During a 4-week period in February, a questionnaire was filled in dealing with leisure time reading and television viewing of these subjects. Comic book reading was included here but summarized later. This study reports more magazine reading in the fourth than in the first year. Girls tended to be interested in fashion, home, beauty care, courtship, and pop-music. Boys' choices were nearly all factual and dealt with football, motor cars, pop-music, or electronics. An interest common to both sexes was a new type dealing in popular

teenage culture. Book reading is reported separately. The reading of poetry, however, was checked by asking for titles and authors. The results showed that more girls than boys read poetry, but in all cases, there was a significant decline from first to fourth years. The number of hours per week spent in watching television showed that the average was 20 to 27 hours or twice as much as in 1958. Older students viewed less than younger ones; grammar school students in the first 2 years tended to be "light" viewers, and only girls continued into the last 2 years; more "heavy" viewers were found in secondary modern than in grammar schools; and there was no statistical difference in viewing habits of students with different reading habits. Books were borrowed from the school library in the modern school by 82, 75, 81 and 56 of the 96 boys in each successive school year. Girls borrowed even more in each year. However, the public school library was used even less, with modern school students in third and fourth years using it significantly less than grammar school students. More than twice as many parents and grammar school students in the same family were public library members than among modern school parents.

Based on the same survey Taylor (385) detailed the use of books. Secondary modern school boys read significantly fewer books than did grammar school boys or girls, and modern school girls tended toward giving up book reading during their last 2 school years. Even so, in the last year of the modern school, 3 of 4 boys and 4 of 5 girls reported some book reading. At all ages, boys read overwhelmingly more non-fiction than girls. Of the hundreds of books read by girls, only about 20 were non-fiction. Among those who read books, the average numbers read by grammar school students was consistent during the 4 years, and fairly consistent for modern school girls, but boys decreased their book reading in the fourth year. In the fiction category, the adventure story was pre-eminent for boys in the first 2 years of secondary school. After the second year, science fiction and "spy and sex" stories gained greater appeal. Considerable discussion of the authors and types of books in the "spy and sex" category suggested that the duality of standards in these novels offends many parents and teachers. In contrast, Dickens was popular in the first 2 years with boys and throughout with girls. Blyton was extremely popular with girls, especially in the first year, with a gradual decrease through the last 3 years. In the fourth year, "Novels with Serious Themes" were popular. In all, there were great variations in reading tastes at different ages and between the sexes.

The third Taylor report (384) analyzed comic reading in this population. During the first 3 years of the modern and grammar schools, *Dandy and Beano* was the most popular. Only with grammar school boys did the readership drop off in the last year. This comic has a crude humor with practical jokes and caricatures of adults. A second comic, *Victor*, has stories about war, adventure, and sports. From this, boys apparently moved to the specialized magazines. Three categories of comics were read by girls: 1) the juvenile type; 2) those aimed at 9 to 12 years; and 3) the love comics which continued to appeal to girls as they grew older, especially through the first 3 years of secondary school. *Jackie*, containing 24 pages and about 16,000 words, dealt with a variety of ideas and problems. Modern school girls were still reading 3 or 4 comics per week in their fourth year and only one in 5 said they read no comics. Even in the grammar school, fourth year, 7 of 8 girls continued to read comics. The non-reader of comics watched less television than the others and also read fewer magazines and books. The girls who read 5 or more comics per week read fewer magazines and books than the average and viewed considerably more television. The implication was offered that perhaps this decline in reading results in less practice in silent reading than in previous years.

Samuels, Biesbrock, and Terry (342) investigated the influence of illustrations on the attitudes of second graders toward stories they read. The subjects were 54 randomly selected from a pool of 3 classrooms in an upper-middle class school. Subjects were randomly assigned to 3 groups for a Graeco-Latin Square repeated measures design. Three treatments were full color pictures from the text, modified outline without color, and a no-color treatment. Three stories were selected from an unfamiliar test and all 3 picture treatments were prepared for each story on 35 mm slides to present on a screen. Immediately after each story presentation pupils responded to: "Did you like the story?" (yes, no), and "How much did you like the story?" (a lot, a little, not at all). On the third day, after each group had received the 3 picture-story combinations, they were asked: "Which story did you like best? Least of all?" Pupils read the story silently to answer a question on each page while aid was given as needed. Then pupils reread it silently as the researcher read it aloud. Questions were answered then. Analysis for the first question showed that group and day effect were insignificant, but story and picture effects were significant. A Newman-Keuls test showed no significant differences between color and outline pictures but both

were significantly preferred (.01) to no picture. The same pattern of significance was found for the amount the pupils liked the stories. However, in the response to the story liked best-to-least, all picture effects were significantly different from each other. The colored picture stories were preferred to the outline sketches and both preferred to no pictures.

IV-18 Readability and legibility

Kwolek (214) conducted a readability survey of a broad sample of reading materials in order to assess trends in readability generally. A modified version of Gunning's Fog Index (FI) was used with 8 sample sources from 18 arbitrary categories of literature. This modified FI assigns less weight to average words per sentence than to per cent of hard words. Ten pages were randomly selected from each source for analysis. Five readers were used in the readability analysis, each of whom read and analyzed 288 pages of text. The obtained FI ranged from 8.6 for youth, romance, TV, and movie magazines to around 17.0-21.8 for technical, scientific, and Great Books. Kwolek, in comparing selected categories of literature to categories used by Gunning in 1950, found an overall increase in readability of 2 units, roughly equivalent to 2 grade levels. On the basis of readability analyses of more popular literature, it was concluded that a FI of 11 appears to be acceptable to most adults, while literature with a FI of 14 or more will be generally ignored, unless the reader has special motivation. Tables presenting average sentence length, per cent of hard words, and average FI for the 18 literature categories are included.

Fleming, Ohnmacht, and Niles (107) conducted a study of the cloze procedure in which deletions of verbs and nouns varying in linguistic constraint were made. Five types of deletions were used, including 1) transitive verbs, 2) complement verbs with a direct object, 3) complement verbs with no direct object, 4) subject nouns, and 5) object nouns. Exact-word replacements and synonyms were accepted as correct responses from 30 paid volunteers reading a modified English translation of *Dr. Zhivago* containing 50 deletions. Three levels of context were defined by the number of words preceding or following the deletion, producing minimum, medium, and maximum conditions of context. The argument that the 3 conditions of verb deletions were progressive in cloze task difficulty was not supported by the data. Interactions between form class deletions and level of context were noted, indicating that level of context had a

differential effect depending upon the nature of the deletions. It was concluded that no "satisfying broad generalizations" concerning context and form class could be offered from the complex data that were obtained. Explanations, however, were offered relative to 2 of the form classes that were investigated.

Kincaid and Delionbach (198) attempted to validate the Automated Readability Index (ARI) in a study of 110 adult men. Using a typewriter designed to provide an index of average sentence length and average number of letters per word, the authors rewrote two 250-word passages from an Air Force maintenance manual until eighth, twelfth, and sixteenth grade level versions were obtained for each. Each subject read one version of each passage and responded to 8-item multiple choice comprehension measures, which were identical across different levels of the same passage. Mean number of correct responses for the hard, medium and easy versions respectively was 3.93, 4.44, and 4.50. Data analyses indicated that a significant ($p < .05$) difference existed between the easy and hard versions, and between the medium and hard versions of the passages. Comprehension scores were also correlated with subjects' *Armed Forces Qualification Test* scores; correlations for the hard versions of the 2 passages (.64 and .43) were significant ($p < .01$), while correlations for the medium and easy versions were not significant. Implications for matching the difficulty level of reading materials to the intended audience were discussed.

McNinch (262) investigated the effect of mixed allographs, or mixed graphic styles, on the ability of 34 beginning second graders to call words in isolation. The experimental sample, consisting primarily of black children from a low income area in Mississippi, was divided into good and poor readers on the basis of grade equivalent scores from the *Metropolitan Reading Test*. Grade scores between 1.4 and 1.7 designated the poor readers, while grade scores of more than 2.0 defined the good readers. Mean IQ on the *Lorge-Thorndike Cognitive Abilities Test* for the total sample was 88. The MRT means for the good and poor readers were 2.4 and 1.5 respectively. Four 10-item lists comprised of 4 letter words from the Fry List of Essential Words were constructed using 1) mixed upper and lower case letters, 2) lower case printing in manuscript style according to the Dallman printing guide, 3) typed lower case letters using Primary Type, and 4) typed upper case letters using Primary Type. Lists were presented to subjects individually in 2 sessions, with words being flashed for one second and responses recorded by the examiner onto

an answer sheet. A subjects × trials ANOVA design was utilized. A significant difference for good readers ($p < .01$) was found between word lists; Scheffe multiple comparisons indicated that list 1 (mixed allographs) was significantly ($p < .05$) harder to read than lists 2 or 3 (lower case print and Primary Type). In the second analysis, poor readers performed significantly ($p < .05$) less well on list 1, when compared to lists 2 and 3. Peformance on list 4 (all Primary Type capitals) was also significantly poorer than performance on lists 2 and 3. A large difference existed between good and poor readers across experimental tasks, with good readers obtaining a grand mean of 8.13 to 2.18 for poor readers.

Henderson (157), employed 5 adults in studying pattern recognition and search strategies. Subjects were given, in 6 testing sessions, a total of 20 search lists. Each list consisted of a 25 × 40 item matrix of letters, the task being to cancel all items in each list that were identical to the target letters for the respective lists. In the first 12 lists, targets were single letters differing in case; backgrounds were defined as confusable if they contained the target letter in a different case. The remaining 8 lists contained 2 target letter, each differing in case. Two of the 8 targets were same letters presented in different case. Background letters for the remaining 8 lists were composed of the following letters or letter combinations: a, A, c, C, e, E. Subjects were given 45 seconds to make cancellations in each list. Results indicated that search time increased when background items included the target in the other case and especially when letters where visually analogous, for example cC. Results also demonstrated that in searching for 2 target letters, search was facilitated when the targets were both cases of the same letter.

Peterson, Paradis, and Peters (299) reported additional evidence relating cloze percentages to the Betts definition of instructional level for high school students of average and above average ability from 3 geographical regions. A series of 4 health education passages of 275 words each were analyzed and ordered by difficulty with the Dale-Chall Readability Formula. Subjects were administered the comprehension subtest of the *Nelson Denny Reading Test* to determine grade level reading ability and assignment of cloze tests. Cloze tests on the health passages, with an every-fifth-word deletion, were given 10 days later. Only exact-word replacements (allowing for misspellings) were counted. Although variation in results existed between passages, performance on the cloze task appeared to be relatively independent of geographical region. A 75 per

cent accuracy level on multiple choice comprehension items had been previously identified as corresponding to a range of 38-44 per cent accuracy level on cloze measures with grade school students. A grand mean of 42.09 was obtained in this study across passages and subjects, replicating the results of other investigators and indicating that data obtained in a similar study of high school subjects by the same authors was probably spurious.

Evans (99) conducted a study that explored "de-transforming" prose materials and the subsequent effect upon readability, and therefore, comprehension. Twelve pairs of high school seniors were matched according to their reading percentile scores, which ranged from 31 to 49, on the *Florida 12th Grade Placement Test*. One subject in each pair received the simplified or de-transformed version of the passages, while the other matched subject received the original passages. Five passages were chosen from the *Davis Reading Test* to be de-transformed by changing complex grammatical structures (nominalizations, relative-clauses, passive voice verbs, and grammatical deletions) into simple or kernel sentences. This procedure resulted in an increase in word count of 13.8 per cent and a doubling of sentence count. Moreover, the number of words per sentence was reduced by more than 50 per cent. Subjects responded to the original 34 multiple choice items, as well as cloze tests over each passage containing a total of 247 test blanks. Comparisons were made with *t*-tests, indicating the subjects who read the simplified versions scored significantly ($p < .05$) higher on the multiple choice items, but total cloze scores were not significantly different. An additional comparison was made using only 3 of the 5 cloze tests on which both groups had higher scores. These 3 cloze tests were numbers 3, 4, and 5 in the series and probably more valid measures than the first 2 since subjects were not familiar with cloze tests. For these 3, subjects receiving the simplified versions of text scored significantly ($p < .05$) higher; this is interesting in light of the fact that the cloze tests were based upon the original text and subjects receiving the de-transformed versions never saw the original text, while their experimental counterparts did.

V *The teaching of reading*

Perhaps the most notable element among the studies classified into this section is the sharp decrease in the number of research reports related to aspects of testing and test development.

This decrease marks the first time in several years that the subcategory designated as Teaching-testing has not been among the largest in terms of numbers in the summary.

V-1 Status of reading instruction

In an effort to ascertain the relative importance of the goal "Mastery of Reading Skills" in the state of Maryland, Shami and Hershkowitz (351) conducted a questionnaire survey by mail. A random sample from special interest groups was selected to participate in the goal validation effort. A total of 11,015 responded to the survey from 23,990 who were sent the mailed questionnaire. Results consistently showed that the reading goal is rated the most important or second most important of all educational goals. Respondents who were either students or central staff of school systems as groups ranked reading skill teaching of second importance as a school goal. Of first importance to students were the "Development of self respect" and "Ability to apply knowledge and skills to the solution of real life problems." Similarly, the central staffs of the school systems rated "Development of self-respect" and "Ability to arrive at independent decisions" as the most important goals. All other respondent groups rated reading as the most important of the 37 goals of education.

The implications of 2 government reports for the teaching of reading in Great Britain were discussed by Merritt (264). One report concerned special reading difficulties, and the second report was on standards of reading. Both were published by the Department of Education and Science in England. The latter report disclosed that reading comprehension standards of juniors has declined somewhat since 1964. As an outcome, recent developments may be accelerated toward self-organized learning in the classroom and increased preparation of teachers on instruction in the teaching of reading at all age and ability levels. Also suggested is a shift in emphasis from special classes by visiting remedial teachers to a part-time teacher who takes the whole class while the regular teacher does the remedial work in the classroom. In this way, a closer link can be made between remedial work and other reading in the curriculum; and closer relationships can be established between the pupil who needs special help and the classroom teacher.

A survey was conducted by Scherwitzky (347) on early reading instruction in kindergarten classrooms in the state of Virginia. A total of 354 kindergarten teachers responded to 15 questions

relating to such matters as the place of teaching reading in the curriculum, time allocation for reading instruction, the use of teacher aides, the use of reading readiness workbooks, and approaches used in beginning reading. Responses to questions varied widely with 144 teachers in favor of the teaching of reading in kindergarten. Also, the replies indicated that 87 per cent of the teachers had aides and that 25 per cent of the respondents used reading readiness workbooks. Of the advantages cited for early reading, the most frequent response given concerned providing instruction for kindergartners who are ready to read. However, the disadvantage most often expressed was that most kindergartners are not ready to read—especially the educationally deprived. Among the programs in beginning reading instruction used most frequently, the language experience procedure was first. Phonic approaches were ranked second, and third was the use of preprimers and primers of basal series.

A survey of secondary reading practices was conducted by Freed (113) through the use of a questionnaire that was sent to each of the 50 state departments of education and to 485 school systems throughout the country. There were 6 questions in the state department survey and 7 in the school district survey. Information sought concerned such areas as the extent of required secondary reading programs, certification standards of reading teachers, and needs for the impovement of reading programs. There was an 82 per cent response to the state department survey and a 50 per cent response to the school district survey. Findings indicated that most state departments do not set minimum requirements for secondary reading instruction. However, 55 per cent of the school districts require reading in their junior high schools and 22 per cent in senior high school, but not necessarily for all students. In only 28 per cent of the junior high schools and 5 per cent of the senior highs are all students required to take a reading course. The type most frequently emphasized by both state department and school districts for use in schools was the developmental reading program; the remedial reading program was the next most frequently recommended. More than half of the state department respondents indicated that no special requirements existed for certification of secondary reading teachers.

A 9-item questionnaire was constructed by La Budde and Smith (215) to survey librarians concerning their role in remedial reading programs. More specifically, the areas examined were the perceptions of librarians on contributions that could be made to an instructional program, services or information expected from a read-

ing teacher, and factors that enhance or hinder cooperative relationships to aid poor readers. A total of 53 responses was obtained from a mailing of questionnaires to 100 urban and rural schools in Wisconsin. Among the findings, not one of the respondents indicated that an exchange of information took place on a regular basis between the librarian and the remedial reading teacher. Only 15 per cent of the respondents personally referred children to the remedial reading teacher. The most frequently requested information by librarians concerned a child's reading level.

Current practices in the area of English teaching was surveyed by Calthrop (48) in a study of the use of prose books—novels, short story volumes, biographies, etc., by teachers at secondary schools in England. A questionnaire was designed to elicit information from English teachers on particular prose books which they found outstandingly successful with more than one class of a given type and age level. More than 600 questionnaires were returned by teachers in different parts of the country, and a number of classes were visited as a validity check on teacher responses. The findings from the questionnaire were reported in a descriptive discourse centering around 7 chapter headings rather than in the form of a statistical or factual analysis, although some children's reactions to some books were recorded in tabular form. Among the many subjects discussed, the use of the class reader was one that appeared to hold a central place in many classes. Values were advanced, for example, on the use of the class reader as a shared experience for common sense of enjoyment and for the resulting sense of community. Discussed were not only the worth of oral reading by the teacher and by the students in the use of the class reader, but also the value of reading in depth. Other chapters included such items as theory on teachers' criteria for their choice of books and practice in teaching literature, with a focus on a variety of books.

V-2 Comparative studies

In a second study that involved over 100,000 subjects at 3 different age levels in 15 nations, Thorndike (389) reported on socioeconomic, cultural, and educational factors related to comprehension abilities in reading of native-speaking students. A wide variety of factors was examined as predictors of accomplishment in reading in an effort to make cross-national comparisons among students from developed as well as less developed countries. Areas of

inquiry included such factors as out-of-school environment, availability of reading materials, educational practices, interests and attitudes toward reading, study and reading habits of subjects, and their physical status. Reading tests not only were constructed to comprise the assessment of comprehension, word knowledge, and reading speed, but also were prepared in different languages. Test data were analyzed with information secured from questionnaires completed by all subjects tested and by a sample of teachers, including a school administrator of each school in the study. Findings show striking differences in reading performances of students between the developed and developing countries. Notable predictors of reading achievement were consistently found to be variables of home and family backgrounds where education of parents, economic advantages, and availability of reading materials including communications media were related to reading success. School factors examined did not produce any variables that were appreciably related to reading achievement.

Two noteworthy studies were published on literature and reading education of students in different countries for cross-cultural comparisons. These pioneering works were carried out by the International Association for the Evaluation of Educational Achievement. In the first study, Purves (308) reported on the relationships of national aims of literature to the place of literature, the actual results of literature instruction in the light of reading achievement, interests and attitudes, and the patterns of responses of subjects to the literature they read. Data were analyzed not only from the outcomes on measures of ability to read specific texts and of patterns of expressed responses that the students chose to particular literary works, but also from results of questionnaires on the interest in literature of students tested and on the amount of transfer of their literary experiences to application in their daily life. Additional data were treated from students, teachers, and administrators concerning attitudinal, educational, social, and economic factors and their relationship to achievement in literature. The study included 50,303 students from 10 national groups in 9 countries, involving 1,976 schools. Among the many findings of importance was that socioeconomic factors and reading resources of a community have a greater bearing on the literary achievement of students than any facet of school organization, curriculum or staff. Also, response to literature appears to be a learned behavior with the pattern of response governed not only by the story a student reads, but by the country of the student as well.

V-3 Early reading

A sample of 96 five-year-old prereaders from low socioeconomic families was used by Yawkey (425) to compare the effects of initial-part letter and whole letter treatment on a transfer task. Each treatment represented a theoretical model of word teaching with the former representing a linguistic or part word approach and the latter standing for a whole or sight approach. For the experiment, 2 treatment groups were formed with 2 consecutive days lapsing between pretesting and the training and transfer conditions. Analysis of variance produced mean differences favoring the transfer effect of the part-letter training group on a set of 2 letter nonsense words. No significant differences were noted between sexes of subjects with either treatment group.

The efficacy of using 4 different presentation cues was studied by Kiraly and Furlong (202) in teaching abstract or concrete words to young kindergarten children from middle to upper-middle class homes. Based on the results of the *Gates-MacGinitie Readiness Skills Test*, subjects were placed into a high readiness group or a low readiness group with each one consisting of 40 kindergartners. The children were then randomly assigned to one of 4 stimulus treatments including picture cue, initial-letter sound cue, and word-form cue as experimental procedures with geometric-form cue as a control procedure. Two abstract and 2 concrete words were used on the 10 learning and test trial cycles. Analysis of variance comparisons disclosed significant differences only between high and low reading readiness groups and between abstract and concrete type words with results favoring the high readiness achievers and the use of concrete words. No differences were found in comparisons among the 3 presentation cues and the control condition.

V-4 Reading readiness

Experimentals and controls were used by Strickland (378) in a study to explore the effect of a special oral language program on reading readiness of linguistically different, black kindergarten children. The experimental treatment stressed oral language participation among the 45 subjects, including imitation and repetition of language patterns, while the 49 controls did not participate in oral language activities. Both groups were exposed to daily oral reading selections by the teachers. Experimentals and controls were given

the *Education Study Center Bidialectal Task for Determining Language Proficiency in Economically Disadvantaged Negro Children* as a pre-post measure. Results using an analysis of variance treatment in general favored the experimental subjects, especially for standard repetitions on the bidialectal task when the pretest scores were used as the covariate. No significant difference was found on the *New York City Prereading Assessment* between mean scores of the 2 groups in readiness to read.

A study by Paradis (291) investigated the performance of 119 preschool and 440 kindergarten children on visual discrimination tasks prior to visual discrimination training to determine the value of such training. Selected for discrimination stimuli in the measuring instrument of 30 items were representations of objects, letters, and words drawn from 7 widely used reading series. Results indicated that many preschoolers and most kindergartners who were from middle socioeconomic families possessed the skills necessary to perform successfully on such visual discrimination activities as are found in popular reading readiness materials. The subjects were able to discriminate representations of objects and letters equally well; however, word stimuli were harder to discriminate than either representations of objects or letters.

To explore the effects of training by parents on the performance of their preschool children in school readiness, Perez (296) used 100 children in experimental and control group comparisons. The experimentals consisted of 50 children whose parents received special instruction during a summer workshop, and the controls included 50 pupils whose parents did not receive special instruction. The measuring instrument used in both the pretest and post test situation was the *ABC Inventory* covering the area of oral language concepts, visual motor skills, and body image. Results of comparisons favored the experimentals.

A sample of 26 preschoolers and 119 kindergartners was used by Rosner (325) to investigate the effect of teaching auditory perceptual skills to prereaders from an innercity school. Testing and treatment consisted of components from author-developed materials organized into 8 levels of difficulty. Comparison of mean number of auditory objectives mastered by experimentals (preschool) and 2 control (kindergarten) groups disclosed results to support the belief that preschool innercity children can benefit from auditory training, although the study did not examine the impact of auditory improvement on reading achievement.

To determine the impact of visual analysis training on the very young, Rosner (326) studied a total of 61 preschoolers and 144 kindergartners from an innercity school. The experimental program sought to develop abilities not only to discriminate elements that were combined to form designs but also to plot the spatial interrelationships of those individual elements. Organized around behavioral objectives, the program was arranged into 9 levels of difficulty according to the complexity of the spatial pattern. Children were given selected visual-motor skill activities to perform as identified by individually administered criterion-referenced tests. The visual analysis program was used by the classroom teachers during the entire school year. Based on post test comparisons of the mean number of visual-motor objectives mastered among experimentals and controls, the results favored children who received special perceptual training.

V-5 Teaching reading—primary grades

Through classroom observations of a total of 16 five and six year olds in 2 English schools, Southgate and Lewis (366) recorded behaviors to assess the amount of time spent directly related to the reading program used and the time spent on other activities during periods set aside for work in the language arts. Based on a total time observed of 150 minutes, only 12 to 15 per cent of time was spent by pupils on reading and writing activities in any way related to the chosen reading program. Also noted was that at least 45 per cent of the time the pupils were involved in extraneous or diversionary activities when the teacher believed them to be engaged in language arts study.

The effects of an individualized reading program utilizing social studies materials was studied by Goolsby and Stoltman (128). They were concerned with the improvement in reading of 77 third graders from Southern Appalachia. Three treatment groups were formed according to ability levels of the subjects. The special treatment consisted of self-directed, self-pacing reading experiences for 50-minute periods for 15 days for the low and medium ability groups and for 25 days for the high ability group. Analysis of pre-post data on the *Iowa Tests of Basic Skills* showed increases in reading attainment and improvement beyond that level normally expected during an equivalent period of instructional time.

Five treatment groups were established by Mason, Mc-, Daniel, and Callaway (245) using 30 first grade classes to determine whether spelling instruction promoted growth not only in read-

ing but also in written composition. Three experimental groups were taught spelling words that were related to the story content or the vocabulary of the basal readers. Two experimental groups were taught spelling words with vocabulary and content not related to basal readers. Direct and incidental teaching of spelling were also controlled variables. The treatment time was limited to approximately 10 or 15 minutes a day. Mean scores of the treatment groups were compared on the *California Achievement Tests* and differences were analyzed by the covariance technique with scores adjusted for intelligence. The results of the experiment favored the treatment groups that were taught spelling words drawn from the story content or vocabulary of the basal readers.

A total of 460 first, second, and third graders was used by Shore and Marascuilo (356) in an experiment to ascertain the effects of 3 instructional approaches on reading achievement in terms of grade level, sex, and mental ability. Sullivan programed materials were used by all 3 treatment groups with Group 1 taught according to conventional strategies, including stress on analytic methods of decoding. For this group, materials were deprogramed by denying subjects' use of immediate feedback information. Groups 2 and 3 were taught according to a prescribed programed fashion with stress on synthetic approaches to word identification. Also, Group 3 was exposed to additional reinforcement through the use of audio-tapes. Multivariate analysis of variance was employed at each grade level to determine whether prior to initial instruction the experimental groups differed on a number of reading skills. Appropriate levels of the *Stanford Achievement Test* were administered as measures of growth. In general, comparisons of average scores favored Groups 2 and 3 at the first and second grade levels but no significant differences were produced at the third grade level.

Spanish-speaking children from 24 randomly selected first grade classrooms were researched by Wooden and Pettibone (419) to compare the impact of 3 reading programs on 18 independent variables in the areas of reading achievement, aural-oral language abilities, and percepto-cognitive skills. One treatment used the *Houghton Mifflin* series; another used the *Miami Linguistic Reader* series; and the third treatment group utilized the Miami series along with the *Kindergarten Evaluation of Learning Potential* program. The programs continued for a duration of 7 months. Growth was assessed using the *SRA Primary Mental Abilities Test*, the *Primary Reading Profiles Test*, and the *Hawthorn Center Symbolization*

Test. Analysis of the treatment effects showed that none of the approaches was uniquely effective in producing higher reading achievement.

A token reinforcement system was found by Heitzman (155) to have a positive effect on the reading behavior of black and white primary school children. Subjects of the study were 70 black and 24 white pupils from migrant working families. Pupils were assigned randomly to treatment and no treatment classes in a 6-week summer school program. The experiment consisted of a reward system for pupils who followed desired behaviors in reading. Tokens used were redeemable for candy, toys, and a variety of sundries. The *Miami Lingaistic Readers* composed the materials of the reading program. Analysis of mean gain scores between pretest and post test for subjects on the *Gates-MacGinitie Reading Test* disclosed that the token reinforcement program had a greater influence on the gain scores of the black than on gain scores of the white pupils. No significant differences were established between the number of tokens received per pupil and their gains in reading.

Two second graders who were low achievers in reading were subjects in a study by Hoskisson, Sherman, and Smith (167) to explore the effect of parent involvement in an assisted reading program at home on the growth in reading of the 2 subjects during a 4-month period. The 2 children involved were selected on the basis of low *Stanford Achievement Test*, Primary Battery, (SAT) scores, and teacher and principal recommendation. In addition, their parents agreed to cooperate. The assisted reading procedure consisted largely of having a parent supply the words a child did not know or had difficulty recognizing. The assisted reading program was limited to from 3 to 5 sessions per week of 15 to 20 minutes. Along with the parent involvement, the 2 children continued their regular reading program at school and met 3 times a week each in 30-minute sessions with one of the researchers for additional assisted reading and progress assessment. Reading behavior and growth were recorded using the *Reading Miscue Inventory*, a measure of rate, and pretest and post test scores on the SAT. Growth was shown on all measures.

No evidence was found by Belmont and Birch (24) to support a supplementary program in the form of either perceptual training or remedial reading for young children with deficiencies in prereading skills. Subjects of the investigation were first graders from the same school. All 58 subjects scored low on the *New York City*

Pre-Reading Assessment Test and were judged the poorest performers in their kindergarten classes. Matched according to age, sex, reading readiness score, and kindergarten evaluation, the subjects were assigned randomly to one of 4 treatment groups. All children received regular classroom instruction. Each of the 4 groups received one of the following treatments: perceptual training, remedial reading instruction, placebo in the form of play activities, and no special treatment. The supplemented and placebo groups received 4 daily one-half hour sessions per week outside the classroom for 7 months in subgroups of 5 or 6 children. At the end of the school year, children were given the *Metropolitan Achievement Test*, Primary 1; the *Gates-MacGinitie Reading Test*, Primary A; the *Wide Range Achievement Test;* and the *Gates-McKillop Reading Diagnostic Test*. Post test results on all standardized reading measures showed that supplementary perceptual training or remedial reading were no more effective than either placebo or no intervention in affecting the reading achievement of first grade children identified as potential failures in learning to read.

A total of 108 first and second graders was used by Stephens, Hartman, and Cooper (373) in 2 treatment groups and one control group to ascertain the effect of directive teaching (D-T) on the reading growth of low achievers during a school year. One treatment (N = 35) consisted of a systems analysis approach and a tutoring model. Five non-degree individuals, utilized as tutors, were given a 2-week summer training program in D-T techniques. Tutors met individually with each child for 2 daily 10-minute sessions, and a behavior modification reward system was utilized with children earning points applied toward toys. The second treatment group (N = 15) received instruction from a trained speech and hearing therapist in a small group setting for 25 minutes daily. A control group (N = 20) received no additional instruction beyond the regular classroom reading program. Another group of 38 children were designated as achievers on the basis of pretest results on the *California Achievement Test* (CAT) and did not qualify for treatment or control groups. An alternate form of the CAT was administered as a post test. The greatest gains were made by the treatment groups followed by the achievers.

The ability of children to select reading materials at their own instructional reading level was the subject of an investigation by Mork (274). Selected from 200 children in Victoria, British Columbia, elementary schools were 29 third graders and 31 fifth graders as

experimental subjects. The children at each grade level were randomly placed either in a guidance group who were briefed on implications of individual differences or in a non-guidance group. Comparisons were made between children's predetermined instructional reading levels and the readability levels of the self-selected materials by the children on 3 varieties of reading matter. Although the findings disclosed that in general the children did not select materials with difficulty level equal to their measured instructional level, one-third of the children did select library books appropriate to their instructional level. Also, a 5-minute guidance session did not seem to have any effect on a child's ability to select reading materials of appropriate difficulty.

V-6 Teaching reading—grades 4 to 8

The number and the types of spelling errors of 323 third, fourth, and fifth grade children who learned to read through the use of i.t.a. were compared with the number and types of spelling errors of 250 pupils who had instruction based on basal readers that used traditional orthography. Petty, Murphy, and Mohan (301) sought to ascertain whether the i.t.a. group made more rational misspellings than did the T.O. group and also to compare the spelling achievement of the 2 groups of subjects. All the children were administered a spelling test that consisted of 50 words specially selected for the study from the *New Iowa Spelling Scale*. Analysis of spelling performances of the 2 groups disclosed little differences in the rationality of the misspellings. Also, the spelling achievement of the i.t.a. subjects showed no significant differences from the spelling achievement of the T.O. subjects.

The effectiveness of training students to generate their own questions prior to reading was studied by Smith (361) in an investigation using 116 seventh graders as either experimentals or controls who were enrolled in a junior high developmental reading course. The experimentals were taught elements in the nature, type, and classification of questioning. The controls continued with the developmental reading course as normally taught. All students took the *Gates-MacGinitie Reading Test* (GMT) and informal tests of student-set questions as pretests before the study and as post tests after 6 weeks of treatment. Based on measured gains on the informal tests of ability to generate prereading questions, the greatest growth favored the experimentals over the controls; however, there were no significant differences between experimental and control groups between pretest and post test scores on the GMT.

The effect of daily high intensity practice for a month on reading comprehension was investigated by Oliver (286) in a study of 48 children in the fourth, fifth, and sixth grades. The experimental group of 28 children participated in programs that stressed uninterrupted sustained silent reading at increasing increments of time; the control group (N = 20) participated in an intensive directed reading program using basal readers with accompanying workbooks. Based on mean comparisons of pretest and post test scores on the *Gates-MacGinitie Reading Test*, Survey D, Comprehension subtest, the gains favored the experimentals although the difference was not statistically significant.

Two separate experiments were reported by Lovitt and Hurlburt (233) on using behavior analysis techniques to assess the relationship between phonics instruction and oral reading. Subjects of the experiments totaled four 9- and one 10-year-old boy. In the first experiment, a 10-year-old fourth grader labelled *dyslexic* according to the Slingerland reading test was taught skills in 5 phonic areas: medial vowels, consonant blends, sound blending, translocation of letters, and digraph-diphthongs. Assessment on these 5 phonic skills as well as 2 oral reading measures were obtained at each of the 14 instructional sessions held. The mean correct rate for every behavior increased. In the second experiment, performance on 2 phonic tasks was obtained on 4 boys. Instruction utilized 2 different phonics programs to note their effect on oral reading. Both phonic instructional techniques were effective, and oral reading improved as phonic skills developed.

Speed reading was studied by Swalm and Kling (381), using a sample of 40 fifth graders and 36 sixth graders. The study examined the effects of timed reading drills and free reading on reading rate and comprehension. Children in the timed reading group received motivated rate drill 3 times a week for 10 weeks. Children in the free reading group were given free reading time equal to the amount of time spent in rate instruction in the timed reading group. Rate practice consisted of reading an assigned story as quickly as possible. Comprehension questions were administered and checked after reading each selection. The *Diagnostic Reading Tests*, Survey Section: Lower Level, the *Van Wagenerr Rate of Comprehension Scale*, and an informal test were used to evaluate the experiment. Post test scores favored the rate training group on reading rate improvement, but on the standardized test, post test comprehension results showed a slight but not significant increase in favor of the free reading group. Also, on the informal measure, post test comprehen-

sion scores showed a slight gain for the free reading group and a real loss for the rate group. The loss in comprehension for the timed reading group was significant at the .01 level.

A critique was presented by Dembo and Wilson (75) on the outcome of a contract by Reading Foundation to conduct a speed reading program for all seventh grade students in the Compton Unified School District of California. The program was to increase the reading speed of 75 per cent of the students by 5 times their starting level with 10 per cent improved comprehension after 24 hours of instruction and 22 hours of outside reading. It was pointed out that in the 3-month period, 1,934 students' comprehension scores decreased from a mean of 5.2 to a mean of 4.9 on the *Diagnostic Reading Tests*. Serious questions were raised as to the ways in which the reading ratio was computed.

V-7 Teaching reading—high school

The ability of eleventh grade students in a Toronto school were compared by Galloway (118) with the ability of teachers to read subject textbooks. Secondary students were classed as either college-bound or non-college-bound. Assessment of reading ability was accomplished with the use of the cloze procedure on 12 selections from different content areas in eleventh-grade textbooks. Conditions of testing included completing the cloze selection in context by allowing the subjects to read the pages preceding the cloze selections before completing them. The students took the tests at one-week intervals over a 3-month period. Comparisons of mean differences were calculated on responses made in isolation and in context by secondary students and teachers. Findings clearly showed that teachers out-performed the students in all comparisons, but the teachers did not read uniformly better in all types of materials. However, students fairly consistently improved when given the test selection in the context situation, but the teachers did not improve when context was introduced. Selections from literature proved consistently harder for both students and teachers than selections from the other subject areas.

A reading improvement program for Indians was reported by Alley, Davison, Kelley, and Kimble (7) in a study of 65 ninth graders and 39 eleventh graders who were problem readers. The program consisted of different activities in 8 reinforcement areas of instruction, including attention on idiomatic confusion, word attack skills, vocabulary, and linguistic clues. Subjects were taught in

classes ranging in size between 15 and 20 and met daily for 50-minute periods. Instruction was selective according to teacher-determined needs. Students were entitled to tangible rewards such as a portable radio for one grade level advancement in reading ability and a camera or wristwatch for more than one grade level achievement. Pretest and post test data were secured from the *Nelson Denny Reading Test* and from the *San Diego Quick Assessment Check* to assess reading gains. The results showed that the mean range of increase was 1.2 years after 12 weeks of class instruction.

V-8 Teaching reading—college and adult

A study on program accountability was conducted by Anderson (11) at a community college. Subjects were 176 freshman volunteers enrolled in a semester reading improvement course. Data were secured from test results on the *Cooperative Reading Test* (CRT). The study showed that the reading program had 90 per cent holding power for those who remained in college. Significant gains were calculated in Vocabulary, Comprehension, and Speed of Reading from analysis of variance between pretest and post test scores on the CRT. Greatest gains were made by the low achievers as identified by pretest performances and the smallest gains were made by the high achievers.

Keetz (192) explored the effectiveness of reading and study skills instruction when incorporated in a social foundation course with an 18-student experimental group and a 31-student control group. The *Davis Reading Test* (DRT) was administered to both treatment groups as a pretest and post test measure. An author-developed informal reading and study test was also given to both groups after experimental treatment ended. Two grade averages were computed for each student's grades for the term prior to enrollment in the treatment course and for the 3 succeeding terms; one for all courses and one for verbal-type courses. The results of analysis of covariance with subtest scores from the DRT as covariates showed that there were no statistically significant differences between the treatment groups for the Level of Comprehension and Speed of Comprehension scores obtained at the conclusion of the experiment. Similarly, no significant differences were found between grade point averages of the 2 groups earned for the term during and the 2 terms following the experiment.

The effect of a reading and study skills program on university grades was studied by Turner, Zais, and Gatewood (394), using a

sample of 379 students who had records of academic problems as revealed by low grades. Following evaluation of their problems, the participants received assistance in reading, study skills, counseling, and tutoring as needed. The average length of time a student received assistance was one quarter. For comparison purposes, a group of 379 students were randomly selected as controls. Mean quarter point averages were computed, and comparisons were made of the mean differences. Findings from analysis of variance showed statistically significant gains favored the group that participated in the special learning developmental program.

A sample of 98 high-risk college freshmen were the subjects in a study by Swalm and Cox (380) examining the effect of reading instruction based on test information secured from the *McGraw-Hill Reading Test* (MHRT). The subjects were randomly assigned either to an experimental group or to a control group. The chief difference between groups was the amount of reading diagnosis each received from which instructor-determined plans were developed. Reading instruction for the controls was based on test data obtained on the *Nelson Denny Reading Test* (NDRT). The instructors of both groups followed the same general course objectives of the reading improvement program for both groups. Classes consisted of no more than 13 students each. Pretest and post test scores on the MHRT and the NDRT for both groups were compared and the findings favored the experimentals.

Smith (362) tested the effect of a pre-outline study technique on the improvement of reading textbooks in an experiment using 43 community college students who had low reading abilities. Treatment consisted of 4 hours of instruction over a 2-week period in surveying and in constructing pre-outline organizers, using 3 textbook excerpts and controlled reader materials. Pretest and post test measures were author-constructed. Comparison of performances did not show significant differences.

The effect of time of day on a reading improvement course was investigated by Gwaltney and Robinson (137) in a study of 69 university students. Twenty-three subjects were enrolled in a Reading Improvement Course at 8:30 a.m., 23 others participated in a 12:30 p.m. section of the same course, and the other 23 comprised a control group. Subjects were volunteers, ranging from freshmen to seniors. The control group was enrolled in a child growth and development course. The duration of the course was 16 weeks, with 2 hourly sessions per week. Both experimental sections were taught by

the same instructor. Both experimentals and controls were pretested and post tested on different forms of the *Iowa Silent Reading Test.* Results from mean comparison of test scores favored the group taught in the 12:30 p.m. section. Both experimental groups scored higher than did the control group on the post test total scores on the Iowa.

Del Giorno, Jenkins, and Bausell (74) evaluated the application of recitation as a study skill on the acquisition of prose. Subjects were 30 university sophomores who were randomly assigned to one of 2 treatment groups. Subjects in the recitation condition were instructed to read an entire selection and then to reread each paragraph. After reading the paragraph, the subjects were to look away and try to recall as well as to check all the facts of the paragraph. This study pattern was followed for each paragraph in the selection for a duration of 14 minutes. In the second condition, the subjects simply read and reread in a repeated fashion the same selection for 14 minutes. The prose passage was a 455-word description of the legislative branch of a county government. Results from mean comparisons between the recitation and read-reread groups on an immediate and delayed cued recall test favored the subjects in the recitation condition, although no differential retention occurred.

Mills, Jensen, and Hershkowitz (272) tested a mathematical linear programming model for structuring an individualized reading program. Values were computed for such variables as predicted gain or loss in performance for a specific method of instruction, level of starting proficiency of each student, minimum acceptable level of gain for each teaching session, and various program objectives including costs and teacher satisfaction. The development and implementation of the linear programing model was conducted over a 2-semester period and involved 200 university students who were divided into experimental and control groups. Based on reading rate and comprehension as criterion measures for comparison of mean scores on pretest and post test conditions, the results showed that the experimental approach yielded greater gains on reading rate scores than did a traditional approach for this population. No significant changes were indicated in level of comprehension as the result of the linear programing model approach.

Australian University volunteers were recruited by Francis, Collins, and Cassel (112) in an experiment to assess the effects of volunteering for reading instruction with methods of presentation in relation to academic performance. From the group of volunteers 26

were chosen at random to undergo a course of reading improvement using the EDL reading projector. An additional 27 were also randomly selected for the course without the instructional use of mechanical aids. Also used for comparison were a group of volunteers not admitted to the course and a fourth group of non-volunteers. Criterion measures used were tests of reading speed and comprehension as well as examination grades in courses in psychology and behavioral science. Analysis of variance of marks from examination performance indicated no significant difference was found among the groups. Both the groups who received reading instruction improved in rate of reading over their starting rates. The groups were not distinguishable from each other by their ability to comprehend the passages read.

Several studies reported on different aspects of word lists. Otto, Chester, and Mehling (290) compared the frequency of occurrence of the words on the Great Atlantic and Pacific Word List (A & P) and the words of the Dolch list as they appeared in the vocabularies of 4 basal series. The per cent of the A & P words were compared with the per cent of the Dolch words that were found in the 4 basic reading series at each of 8 levels. The A & P list was derived from the American Heritage Intermediate Corpus drawn from more than 5 million words in 500 word samples of 1,045 published materials written for students in Grades 3 through 9. In 7 of the 8 grade levels and 28 of the 32 readers examined, the highest frequency 220 A & P words made up a higher per cent of the running words than did the Dolch words. The A & P words accounted for 62.0 per cent of the words sampled while the Dolch list comprised 58.8 per cent.

A comparison of the overlap between 2 word lists, one derived from written sources and one compiled from oral language sources was reported by Chester and Otto (56). The Great Atlantic and Pacific Sight Word List (A & P) of the 500 most frequently occurring words was compared with the Newman-Bailey List (N-B) that was based on 8 word frequency counts from a variety of oral language situations. In the comparison of frequency rankings of the 2 lists, 95 of the first 100 words were discovered common to both lists. Overall, 389 of the 500 A & P words also appear on the N-B list. In short, the 500 A & P words account for 70 per cent of all occurrences of oral vocabulary as compiled on the N-B list.

Johns (180) compared the Dolch list of 220 words with 4 recently published word lists to determine whether the Dolch list has current value. The first comparison was with the 500 most frequent

words compiled from samples of published materials used in Grades 3 through 9 as published in the *Word Frequency Book*. The second comparison was with the 188 high frequency words from children's trade books as compiled in the Durr list. The third comparison was with the 500 most frequent words from the Kucera-Francis list in a study of over a million words drawn from a variety of subject matter and prose styles. The fourth comparison was with the 727 high-frequency words from the Murphy analysis of over one million words in a tabulated count of children's oral vocabulary in kindergarten through Grade 3. These comparisons showed that only 31 Dolch words were not found on at least 3 of the word lists. The remaining 189 Dolch words were judged current with high utility value.

Samples of the oral vocabularies of 5-, 6-, and 7-year-old children were secured by Johns and Higdon (181) who compared the frequency of word use for each age group to the Dolch list and the Kucera-Francis list. Both word lists were compared to the Wepman-Hass spoken word count. The findings disclosed that young children's spoken vocabulary contained significantly more Dolch words than Kucera-Francis words.

Two reports appeared that commented on the reading difficulty levels of content area materials. The readability of elementary algebra textbooks were studied by Kulm (213) to determine sources of reading difficulty. Two types of written materials were identified in algebra texts either as "explanatory" where concepts are defined, explained and developed, or as "illustrative" where specific examples of a problem or equation are provided. The differences between explanatory and illustrative passages were measured by a number of variables that reflect the structure of written material such as average sentence length, per cent of mathematics symbols, and per cent of personal and mathematics terms. Comparisons were then made of the mean values derived using 50 sample passages of each type of material. Significant differences were found on per cent of mathematical symbols and shorter sentence length variables for illustrative materials. Continuous prose style of the explanatory material was noted in terms of greater per cent of connected sentences. There were no significant differences in the percentage of difficult words, mathematical terms, or personal words as found in the 2 types of selections. Data secured from the use of the cloze procedure disclosed no differences in readability for the 2 types of written materials. However, the variable of mathematical symbols was found to rank as the best single predictor of readability. The author

concluded that the difficulty caused by the symbolism of mathematics outweighs vocabulary as a source of reading difficulty.

Fry's Readability Graph was used by Kennedy (196) to calculate the difficulty levels of selected junior high and high school science texts. Readability scores were obtained by plotting average sentence length and syllable count per 100 words from a total of 3 passages for each book. Readability levels, in general, were found to range among the variety of textbooks examined with the average reading level about one grade level higher than the grade level of the intended user. The range of readability levels within a given book ranged from no spread to a 6 or 7 year spread.

The utility level of 8 syllabication generalizations applied to 2- and 3-syllable words from selected basal readers and social studies texts was examined by McFeely (259). Comparisons were made between the basal vocabulary and the social studies vocabulary. Analysis of vocabulary included only 2- and 3-syllable words with the omission of foreign words, proper nouns, and acronyms for a total of 7,660 words used in the study. No overall differences were discovered in the utility of a basal reading vocabulary when compared to a social studies vocabulary. Syllabication generalizations relating to prefixes and suffixes consistently had high per cent of utility among words in material from grade level to grade level. It was found that 3,549 words in the study contained either a prefix or suffix. The VCCV generalization was noted to have a greater utility than the application of the VCV generalization, which was judged as not dependable.

Lowerre and Scandura (234) developed materials for diagnostic testing and for teaching in the area of critical reading that involved 2 logical inference rules for use at the third grade level or higher. Each logical rule determined a class of stimulus-response pairs, where the stimuli consisted of reading materials on which the logical rules were to be applied, and the responses were logical implications of these reading materials. The instructional materials were designed to start at the levels where the child could use a logic rule, and then gradually the difficulty level increased. Use of a logical rule was judged successful when a child could make or recognize a valid inference, detect logical incompatibilities, and identify invalid uses of the rule. Two equivalent tests were constructed for each rule with 12-16 items at each pair of difficulty levels. The teaching materials consisted of 10 workbooks for each logical rule, with a prerecorded cassette tape accompanying each workbook. After children were pretested, 40 subjects were randomly assigned to either

the experimental or the control group. The experimentals received instruction 2 at a time about twice a week for about 2 months. No instruction was provided to any of the controls. Post test findings favored the experimental group and supported the belief that logical reasoning can be improved using printed material for elementary children reading at the third and fourth grade levels.

V-9 Teaching materials

The relationship between the semantic variable of word frequency and reading comprehension was examined by Marks, Doctorow, and Wittrock (243) to determine whether small changes in word familiarity affect story comprehension of elementary school reading materials. The subjects were 222 sixth graders who were randomly assigned to 2 reading treatments differing only in the frequency of 15 per cent of the words used in the stories. High frequency words of the same part of speech, length, and grade level were replaced with synonymous low frequency words or vice versa. Modified SRA stories served as the experimental reading materials, and the *SRA Reading Placement Test* was used to assess reading performances. All pretests, treatments, and post tests were given simultaneously to all children, holding constant such variables as time of day, experimental setting, fatigue, and noise. The findings showed that at each reading level, reading comprehension increased with the use of high frequency words, both for stories at the pupil's reading level and for stories above the pupil's reading level. The facilitation in reading comprehension obtained in this study occurred although syntactical and grammatical variables, and readability, were held constant across the treatments.

V-10 Corrective and remedial instruction

Prognosis of reading achievement was examined in England by Yule (427) in a 5-year followup study of 2 types of poor readers at ages 9 to 11 years. One group consisted of backward readers who were defined as having reading attainment at 2 years, 4 months below their chronological age. The other groups were retarded readers who were defined as having reading attainment at 2 years, 4 months below their predicted level on the basis of chronological age and measured intelligence. Subjects of the followup were 73 backward readers and 71 retarded readers. A variety of school achievement measures were administered including the *Neale Analysis of Reading Ability*. At average age 14½ years, both groups of poor

readers in general scored on the average at the 9-year reading level. Backward readers as a group did better than the retarded readers who were intellectually superior. The author concluded that if a child has a severe reading problem at the age of 10, he would probably continue to remain handicapped.

Dittman (80) examined the standardized test scores and classroom performances of high school students who were problem readers. Data were compared for 140 students who received treatment at a reading clinic with 390 students who needed help but had not previously received it. Another 232 students served as the control group in the study. Results on comparisons of senior class ranking showed that a greater per cent of clinic cases were found in the upper 2 quarters of class standing than the non-clinic group.

The use of *Words in Color* as a remedial reading treatment at the intermediate grades was investigated by Kaufman (190). In the study, 13 retarded readers participated in an intensive summer program. Two additional groups were formed to control for practice effects. *Words in Color* group 1 received a total of 60 hours of testing and instruction during a 4-week period. A second *Words in Color* group met for 60 hours also but did not receive as much instructional time as the experimental group. The third group met for a total of 30 hours of instruction in reading and language arts. The *Durrell-Sullivan Reading Achievement Test, Intermediate;* the *Morrison-McCall Spelling Scale;* the *Wepman Auditory Discrimination Test;* the *Roswell-Chall Auditory Blending Test;* the *Gray Oral Reading Test;* and various non-standardized tests of phonics knowledge, reading vocabulary, and listening vocabulary were all administered as pretest and post test measures. *Words in Color* group 1 made gains in paragraph meaning and auditory blending based on pretest and post test comparisons of mean scores for the group. The second *Words in Color* group showed no significant gains on any measures. No significant differences were noted when pretest and post test scores were compared on listening and reading vocabularies among the 3 groups.

A behavioral program was designed by Heiman, Fischer, and Ross (154) to modify attentional behaviors and to increase letter and word recognition skills of retarded readers who attended an on-campus university tutoring program. A total of 14 subjects aged 7 to 12 was used in the study with 7 subjects as experimentals. They were given special treatment through a reward system. It consisted of a point system to reward attention to and identification of letter

and word combinations. The remaining 7 problem readers were the controls who were given the same materials but without a specific task or reinforcement. After seven to ten 30-minute sessions over a 7-week period, the experimental group had improved significantly more than had the control group according to results on the *Spache Diagnostic Reading Test* and the *Gilmore Oral Reading Test.*

McCollum and Anderson (254) studied the effect of group counseling on the achievement of 48 subjects, 10 to 14 years old, who had reading disabilities. Equal numbers of subjects were assigned to either experimental or control conditions. They were drawn from 3 schools offering classes for children with minimal brain dysfunction. Each subject was diagnosed as having a minimal brain dysfunction and/or a learning disability. The group counseling treatment consisted of weekly sessions, 45 minutes in length, for 10 weeks. The content of the group sessions centered on school problems, reactions to the reading disability, teacher-pupil relationships, home problems, and reactions toward the special education class. A variety of reading tests were administered to all subjects before and after the series of group counseling sessions and included the *Gates Basic Reading Test*, Type RV, Reading Vocabulary, and Type LC, Level of Comprehension; and the *Slosson Oral Reading Test.* In general, based on pretest and post test results, the reading vocabulary gains of the counseling groups were significantly greater than the gains of the control group. Comprehension skills were not significantly changed.

Richardson, Winsberg, and Bialer (315) assessed 2 methods of teaching phonic skills in the treatment of 18 severely retarded readers in a state hospital for neuropsychiatrically impaired children. An experimental program was designed to teach phonic skills through a series of 60 lessons on an ordered presentation of printed symbols and verbal instructions that promoted the associations between symbols and sounds. The control group was taught with the use of the BRL-Sullivan Program. The subjects were all males who were arbitrarily assigned to one of the 2 reading programs and were taught in small-group sessions of 3 subjects each. After 37 sessions, the experimental group outperformed the control group according to a comparison of pretest and post test scores on an author-constructed test, the *Phonic Skills Test.* Based on results of the *Sullivan Placement Test* as a pre- and post measure, no evidence of mean differences were found between the 2 groups.

The relative effectiveness of 3 remediation approaches and one control to teaching reading was compared by Serwer, Shapiro,

and Shapiro (349). Subjects were 62 children with specific learning disabilities. Previously screened as high-risk kindergartners, the subjects were assigned randomly either to the control or to one of the 3 treatment groups. The first group was assigned to the direct remediation technique consisting of the Distar Reading Method. The second technique was an indirect method described as perceptual-motor in approach. The third group was given a combined method involving equally the Distar method and perceptual-motor training. The control group received no special remediation but these subjects were treated to a twice-weekly program of walks and listening to music. The treatment was conducted during the entire first grade school year in 2 phases. A battery of tests were administered at various times to assess a variety of achievement areas. Post testing consisted of the *Metropolitan Achievement Test*, Primary Level; *Durrell Listening Test; Gates-McKillop Reading Diagnostic Test; Waltham Motor Tasks;* Spelling Test subtest of the Gates-McKillop; and the *Handwriting Scale*. In general, the outcome of the testing program indicated that the indirect and combined groups showed better achievement during the experimental year than did the Distar and control groups.

A behavior analysis approach was reported by Lahey, Weller, and Brown (216) in the remedial teaching of phonics to 4 semiliterate recruits in the U.S. Navy. Subjects' scores ranged from 3.2 to 4.7 on the *Gates-MacGinitie Reading Test*. The experiment focused on the acquisition of phonic discriminations of the long and short vowels in a setting where each subject participated individually. Six sets of 15 words each were used in the study. Each set consisted of 3 words. A point system was used according to correct or incorrect responses of the subjects as a means to manipulate response consequences. Total training time ranged from one to one-and-a-half hours. Comparison of subsequent trials with baseline performances showed improved responses to phonic instruction.

V-11 Teaching—testing

Langer, Wark, and Johnson (218) conducted 2 experiments on test-wiseness in objective tests with students enrolled in a university how-to-study course. Test-wiseness was defined as a process of choosing correct answers on objective tests based on knowledge of test construction *per se* and not on the knowledge of the subject matter tested. Thus, knowledge about the form of objective tests was called test-wiseness. Data were secured on 80 subjects in the first

study to ascertain whether test-wiseness did exist and whether it could be taught. Comparison of mean scores on the pretest and post test of an author-developed Test-Wiseness Test were made for 3 treatment and one control groups who received varying degrees of instruction on test-wise cues. Results supported the view that test-wiseness can be taught. The second study sought to determine the best method for teaching test-wiseness. It was found that methods of reading, lecture, and programed exercises produced similar results.

The score method of the residual gain procedure versus the crude gain method in measuring reading improvement was the subject of a study by Taschow (382). A sample population of 158 university freshmen and sophomores was used. Statistical analysis for significance was based on data secured from scores on the Vocabulary and Comprehension subtests of the *Nelson Denny Reading Test*, Forms A and B. Treatment of raw scores by the raw score formula, $Y \cdot X = Y - [6X + C]$, resulted in predicted post raw scores from which the residual gain was derived by subtracting the post raw scores from the predicted post raw scores. Crude gain was obtained by subtracting the pre-raw scores from the post raw scores. Comparisons of the results between the 2 treatment procedures generally favored the residual gain method as a more accurate individual gain measure than the crude gain method.

McDonald and Moorman (258) reported on the development and use of the *Minimal Reading Proficiency Assessment* (MRPA) as a criterion referenced test for functional literacy at the high school level. Twelve performance objectives of reading proficiency comprised the areas to be tested by the MRPA. Each of the 12 skill areas had 4 test items for a total of 48 questions. Short selections, ranging in length from 65 to 350 words, were used to test comprehension. Table of contents, dictionary entry, income tax form, and city map were part of the content in the testing of study skills. According to the application of the Flesch formula, a range of readability was determined from fourth through tenth grade level, with a mean readability of 8.3. The MRPA was administered to 13,170 high school freshmen and sophomores. On the 48 items, the per cent of student correct responses ranged from 39.4 to 95.9 with an average of 79.2. A reliability correlation coefficient of .89 was calculated from a sample of student scores on the MRPA and on the *Davis Reading Test*.

Coefficients of correlation and coefficients of determination among scores of 30 kindergartners were calculated by Pasewark, Scherr, and Sawyer (292) on the *Vane Kindergarten Test, Wechsler*

Preschool and Primary Scale of Intelligence (WPPSI) and *Metropolitan Reading Readiness Tests* (MRT). Fairly high relationships were found between scores on the Vane Perceptual-Motor IQ, Vane Draw-a-Man IQ, Vane Total IQ, WPPSI Verbal IQ and WPPSI Full Scale IQ and scores on the MRT. Correlations for these variables with MRT total scores ranged from .49 to .66. Other Vane and WPPSI IQ correlations with the MRT ranged from .06 (WPPSI Performance IQ vs. Word Meaning) to .69 (Vane Draw-a-Man IQ vs. Word Meaning).

First grade scores on various measures were used by Pikulski (303) to assess their predictive efficiency for sixth grade reading and spelling achievement. Used as predictors were the *Pintner-Cunningham Intelligence Test*, the *Murphy-Durrell Reading Readiness Test* and the *Metropolitan Readiness Test*. These measures were administered in the first grade to 232 children who formed a Language Arts group for instructional purposes and to 201 children who formed a Basal Reader group. At the end of sixth grade, standardized tests of spelling and reading achievement were administered to 159 children remaining in the Language Arts group and to 175 children in the Basal Reader group. Scores were then correlated between the first grade measures and later achievement measures to determine predictive values. The results indicated that scores on the early measures were better predictors of later achievement in reading than in spelling. Comparisons of most correlation coefficients disclosed that they were significantly better for the Language Arts group than for the Basal Reader group. It was also found that children who scored high in first grade continue to achieve well even at the end of sixth grade.

A sample of 99 Spanish-speaking first graders was used by Fowler (111) to determine whether listening capacity as measured by the *Brengelman-Manning Linguistic Capacity Index* (BMLCI) could predict the reading achievement for the population. In the study, the *Metropolitan Achievement Test*, Primary I Battery, was used as the criterion measure. Test scores were correlated by multiple linear regression analysis procedures to ascertain the predictive efficiency of the subtest variables of Vocabulary, Phonology, and Grammar of the BMLCI. The results showed positive coefficients of correlation indicating reasonable predictive values for all predictor variables. A coefficient of .5760 was found between total scores on the 2 tests. However, when the scores on the BMLCI were included with the total scores on the *Metropolitan Readiness Test*, no additional gains in predictive efficiency were attained.

The validity of 3 quickly and easily administered instruments of intelligence was investigated by Pikulski (304), using 59 disabled readers as subjects. Correlations were calculated between scores on the *Slosson Intelligence Test* (SIT), *Quick Test* (QT), *Peabody Picture Vocabulary Test* (PPQT) and on the *Wechsler Intelligence Test for Children* (WISC). Scores from all 3 brief measures were significantly correlated with the full scale score of the WISC yielding coefficients of .75, .74, and .60 respectively for the SIT, QT, and PPVT.

The predictive validity of the *Bender Visual-Motor Gestalt Test* (BVMGT) was examined by Coy (67) as it relates to achievement in reading and math of 51 third graders. Scores from the BVMGT were correlated with the scores on the Reading and Math subtests of the *Wide Range Achievement Test* and with scores on the *Cooperative Primary Reading Test*, Form 23B. Statistical analysis of test scores showed very low and nonsignificant correlations. Also, when the subjects were classified in high and low achievement groups, comparisons of their mean BVMGT errors revealed no significant differences. Thus, the BVMGT was deemed inadequate as an instrument for differentiating high and low achievers in reading and math for these subjects.

Wilson and Spangler (416) examined the use of the *Peabody Individual Achievement Test* (PIAT) as a clinical tool. A total of 83 children and adolescents with learning difficulties were used as subjects. Each subject was administered the PIAT in addition to either the *Wechsler Intelligence Scale for Children* (WISC) or the Stanford Binet (SB). In 57 out of the 83 cases, the *Peabody Picture Vocabulary Test* (PPVT) was also administered. Pearson product moment correlation coefficients were calculated between the PIAT total test score and the scores on WISC, SB, and PPVT. A moderate, positive coefficient of correlation was found to exist between the scores on the PIAT and all 3 intelligence scales. When partialled for age, the coefficients of the PIAT were .58, .49, and .45 for the WISC, SB, and PPVT, respectively.

Stoll (376) did a factor analysis of subtests of the *Stanford Diagnostic Reading Test* (SDRT) to determine its relative composition. In an effort to check validity of the subtests, she calculated multiple correlations among the SDRT; the *Primary Mental Abilities Test* (PMA); the Harris Graded Word Lists for fourth grade; the *Gilmore Oral Reading Test;* and the *Bond, Clymer, and Hoyt Silent Reading Diagnostic Tests.* To determine the factor pattern of the

SDRT, the test was given. The entire SDRT, Level II, as well as the Auditory Discrimination, and the Beginning and Ending Sounds subtests from Level I were administered to 143 children in remedial reading programs in 3 widely separated States. Four major factors emerged and were called: factor I, word attack; factor II, auditory processing; factor III, auditory vocabulary; and, factor IV, rate of reading. Both literal and inferential comprehension loaded substantially on the first 3 factors but not the fourth. Analysis of the test scores on the Rate of Reading subtest revealed a bimodal distribution with 27 per cent of scores in the upper stanine. The second part of the study was based on scores of 25 fourth and 18 fifth graders, all scoring below grade levels. Besides within coefficients, the highest intercorrelations were Harris List and Gilmore Word Recognition (.71), and Harris List and Words Per Minute on the Gilmore (.76). Rate of Reading on the SDRT correlated .30 with rate of oral reading on the Gilmore. The Vocabulary subtest of the SDRT and the Verbal Meanings subtest of the PMA were related (r = .65) as were the Harris Lists and Syllabication and Blending subtests of the SDRT (.60 and .62). Multiple coefficients of correlation of the SDRT with the Harris List were high (.836) as was the Bond (.873). Coefficients of correlation between the SDRT and the 3 scores on the Gilmore ranged from .441 with comprehension to .673 with word recognition. Questions were raised about the difficulty level of successive passages of the Gilmore test with this population.

The relationship between self-perceptions of reading abilities and reading achievement was examined by Jason and Dubnow (178) in a study using 231 fifth graders in 9 classes from a Chicago suburban school district. To measure pupils' perceptions of their reading abilities, the Self-Report Reading Scale was developed as a group instrument to include 20 items requiring "yes" or "no" responses by the subjects. Also administered were the *Otis-Lennon Mental Ability Test*, and the *Iowa Tests of Basic Skills:* Vocabulary and Reading Comprehension subtests. Coefficients of correlation of .28 and .22 were found between scores on the self-report and on the Vocabulary and Comprehension sections, respectively, when IQ ratings were partialled out.

VI *Reading of atypical learners*

Sloan and Habel (360) studied the effect of print size on the reading speed of 22 subjects, all classified as legally blind. Four novels were used, each in standard and large print versions. Subjects

were asked to read aloud a sample selection from a text written at the appropriate grade level. Reading time was then determined with 1) small print, 2) large print, and 3) again with small print. A words per minute measure was then computed of the first and third assessments to get an average for small print oral reading time. Reading speeds for large and for small print tended to be the same for individual subjects.

In the study by Kelleher (193), 5 low vision subjects were used to note the effects of the bioptic telescope on their attitude and academic performance. Two male subjects, one age 10 and one 17, had complete albinism. There was one female, age 11, with incomplete albinism and 2 additional males, ages 11 and 10, with aphake and aniridia respectively. All subjects were enrolled in regular classrooms with special instruction from the itinerant teacher of the visually impaired. All met the criteria of having a pathology which would respond to the magnification provided by the bioptic telescope, including corrected central acuity of 20/300 with standard ophthalmic lens and a stable etiology of long duration. Subjects were trained in the use of the bioptic for 2 weeks prior to the 6-week experimental period. Pretest and post test measures were taken on the *Wide Range Achievement Test* (WRAT) and on attitude. A significant change in attitude was found, but no measurable change in achievement was noted for reading, spelling, or arithmetic.

Brothers (44) assessed the effectiveness of an instructional kit utilizing the Braille Code Recognition (BCR) materials on the braille reading skills of visually handicapped students. The 24 subjects ranged in age from 10-6 to 22-0 years. Of the subjects, 4 were classified as ungraded, 7 were enrolled in grades 4-6, 10 were in grades 7-8, and 3 were in grade 12. Teachers were asked to rate those students whom they could on academic functioning. They rated 5 as functioning above grade level, 8 at grade level, and 8 below grade level. Teachers were given inservice work in the use of the BCR materials as well as instruction in the administration of silent reading tests. Materials were to be used for 15 class days with sessions not to exceed 30 minutes in length. The *Diagnostic Reading Test*, Survey Section (DRT) was used to obtain pretest and post test measures of silent reading rate. Records were also maintained of increased accuracy in recognizing braille words on the BCR lists and of increased speed in recognizing the symbols. Pre-experiment accuracy was 88.7 per cent; post-experiment accuracy, 97.4 per cent. The mean difference was significant at the .01 level. A statistically significant reduction in mean time scores on the BCR lists was also

noted. The DRT was given to 20 subjects only. Comparisons of mean scores indicated a significant increase in braille reading speed as well as a significant gain in comprehension.

Wilson and McReynolds (417) investigated the effectiveness of the vibrotactile pulser and a differential reinforcement procedure in increasing oral reading rate in deaf speakers. Subjects were 6 children with moderate to severe hearing losses who were functioning within a hard-of-hearing classroom and whose oral reading rates for monosyllabic words did not exceed 1.6 syllables per second. Four of the subjects were used in the experimental setting while 2 served as controls. Three 50-word lists were used for baseline, midtraining, and post-training rate measures. Twenty-four 50-word lists were used as training material during the experimental sessions. In addition to the word lists, the sessions for measure of oral reading rate were 10 sentences and 200-syllable contextual reading passages. Following silent reading, subjects were given the opportunity to ask for clarification of words and then read the word list, sentences, and contextual passages aloud while being timed. Subjects were trained to read in synchrony the pulser and received a point if the reading rate for a word list was equal to the pulser's pulsing rate. Points were then exchanged for money at the end of each session. Post training assessment was taken when subjects reached a criterion of 2.8 syllables per second or had participated in 20 training sessions. All children in the experimental program increased their rates of reading new monosyllabic words, sentences, and paragraphs. Based on judges' ratings, the rate increases did not result in decreases in intelligibility of the reading.

Martin (244) analyzed the effects upon comprehension of randomly deleting 20 per cent and 80 per cent of the words from 4 grammatical categories: nouns and pronouns; verbs; adverbs and adjectives; and articles and conjunctions. The subjects were 152 entering freshmen at a college for the deaf. A computer program was designed to delete randomly any specified percentage of words from any grammatical category or combination of categories. One traditional passage of 2,696 words was used and 8 sets of experimental passages based on the original were developed with deletion levels at 20 per cent and 80 per cent in each of the 4 grammatical categories. A 60-item multiple choice test and a 20-item set relations test were used to check comprehension. Subjects recorded their own reading time. A 2 × 4 factorial ANOVA with Percent Deletion and Grammatical Category as the 2 independent variables was used as the basic design. In addition, several one-way ANOVA's were used to compare

the traditional passage to the 8 deletion passages. Only the noun and pronoun deleted passage scores revealed a marked difference between the 20 per cent and 80 per cent deletion levels in comprehension. The 80 per cent level in the noun and pronoun deleted passage showed a drop in comprehension when compared with the traditional passage. The 80 per cent article and conjunction deleted passage produced the highest comprehension score of all passages even though the difference was not significantly higher than the traditional passage. The 2 × 4 ANOVA revealed no significant differences for the 2 independent variables. Performance on the set relations test was found to be comparable regardless of the type of passage. However, none of the treatment scores on this test differed from chance. No significant differences were found for reading times or reading rates among any of the 9 treatment passages.

Peckham, Sheridan, and Butler (293) identified 3 subgroups of children with a significant hearing loss and compared them with control children on a number of characteristics including educational attainment. Group 1 consisted of 133 children with a moderate bilateral audiometric loss (35-54 dB); Group 2 was comprised of 46 children with a severe unilateral audiometric loss (55 dB or worse in one ear and normal hearing in the other); Group 3 was made up of 40 children with severe bilateral loss. The controls consisted of over 11,000 British children who were also 7 years old in 1965 and for whom various health, education, and family background data were available. No significant difference in birth order or in social class was noted for any of the groups. Children's reading ability, oral ability, and number work were assessed by their teachers on a 5-point scale. All 3 groups of hearing loss children tended to be ranked lower in reading ability than the control group children and also showed less oral ability. They also were reported to be clumsier and more were rated by teachers as being maladjusted. In addition, visual defects were more prevalent among the hearing-loss groups.

The direct discourse format found in first grade reading material was analyzed by Hargis, Evans, and Masters (148) to determine its effect on the reading of hearing impaired children. Subjects were 25 children randomly selected from those in a school for the deaf who were reading at grade 1 level. Direct (conversational) and non-direct (nonconversational) selections of about 500 words in length were randomly chosen from a first reader and treated to a cloze procedure. Subjects were then asked to fill in the blanks. An analysis of variance technique used to analyze the data yielded the finding that the direct discourse material was more difficult.

Five experimental treatment conditions were explored by Stroll and Bliesmer (379) in their research on the effect of question position on retention. Subjects ranged in age from 9 to 18 and were in a private school for socially-emotionally disturbed children. There were 55 subjects at each of third, fourth, and fifth grade reading levels. The treatment conditions were 1) study questions appeared before the entire selection (QB); 2) study guide questions appeared after the entire selection (QA); 3) study guide questions were interspersed before short passages (QIB); 4) study guide questions were interspersed after short passages (QIA); and 5) no adjunct study guide questions were provided (NQ). The experimental training materials were prepared from published stories and were about grade 4 level in difficulty. Five factual memory questions selected from 10 comprehension questions supplied by the publisher of the stories were used for the adjunct study guide questions and were positioned in the material according to the treatment condition. Three factual questions and 3 higher level questions served as criterion test questions and were used to assess immediate retention. Delayed retention was checked by 16 questions, one factual level and one higher level from each of the 8 training sessions used during a week. Subjects received training in each of their respective conditions for a period of 6 consecutive weeks. In addition to the immediate and delayed retention tests, pretest and post test scores on the *Gates-MacGinitie Reading Tests* were analyzed and 5 behavioral measures on the *Devereux Elementary School Rating Scale* were selected for use. Various analyses of variance models were used in the design. In general it was found that adjunct questions did not appear to facilitate either immediate or delayed retention. Behavioral scores of the 5 ratings on the Devereux were negatively correlated with both measures of retention, indicating that various patterns of behavior were not functioning to depress the test scores. It was found that better retention was achieved by those children whose reading levels were a year above the reading level of the materials.

Blaney (33) studied the differences in the abilities of several groups to utilize the cloze and other language measures. Three groups of male subjects were involved: 25 normal controls; 22 hospitalized controls diagnosed as having anxiety neurosis, depressive neurosis, or depressive psychosis; and 71 hospitalized schizophrenics. Subjects were given Chapman's lexical ambiguity strongest meaning test, a newly devised structural ambiguity analogue of it, the Kent-Rosanoff word association list, and the cloze procedure. The Chap-

man procedure did not differentiate the schizophrenic group from either of the other groups. Schizophrenics showed less accuracy in predicting deletions verbatim than did the normal controls. When 22 schizophrenics hospitalized 2 years or less were compared with 31 schizophrenics who had been hospitalized 5 years or more, the short term hospitalization group tended to do better on all cloze variables.

Jansen (177) compared mean WISC subtest standard scores and *Wide Range Achievement Test* (WRAT) grade equivalents for 3 groups of elementary school children who had received a psychological examination: 1) those who were referred back to the regular classroom, 2) those who were sent to classes for the educable mentally retarded (EMR), and 3) those who were referred to classes for the minimally brain injured. The subjects included 107 boys and 58 girls. The average age range was from 7.0 for brain damaged boys to 8.8 for retarded girls. Grade placement ranged from 1.4 for retarded boys to 2.2 for children returned to the regular classroom. Generally, brain damaged pupils scored significantly higher on the WISC subtests than did the EMR group; the children returned to the regular classroom scored significantly higher than either of the other groups. Children referred back to the regular classroom tended to be reading at grade level on the WRAT. The other subgroups had WRAT Reading grade placements of from .7 (retarded boys) to 1.2 (retarded girls).

Three children enrolled in a program for trainable-level retardates were the subjects of the research by Brown, Huppler, Pierce, York, and Sontag (45). The subjects were involved in a program designed to teach them to read unconjugated verbs. The children's IQ ranged from 30 to 50, and they had been in school from 3.5 to 5 years. Baseline measures were obtained on the pupils' abilities to perform 5 different physical actions, label 5 action pictures, discriminate among 5 different action pictures, label 5 word cards, label 5 word cards and then discriminate among action pictures, and label 5 word cards and perform the appropriate physical actions. The other phases of the program consisted of teaching pupils to perform the 6 activities in the baseline measures. The 3 subjects were taught to read the verbs adequately by the authors' definition.

Changes in IQ and academic achievement of former institutionalized educable retardates who had been living in the community for at least 6 months were determined by Rosen, Floor, and Baxter (323). The WAIS and the Reading, Arithmetic Computation, and Problem Solving Sections of the *Metropolitan Achievement*

Tests were used to determine changes. Mean differences on all tests were found to be non-significant.

Tyler (395) attempted to match the type of reading instruction given to the auditory and visual strengths of mentally retarded pupils in learning a group of unknown syllables. Subjects were selected from 13 special classes for the mildly retarded. A total of 112 children were tested for perceptual speed, digit span, visual closure, auditory attention span for related syllables, auditory closure, visual sequential memory, memory for designs, and auditory discrimination. Children exhibiting the greatest discrepancy between the composite auditory and visual Z scores were selected for the study. Those subjects with the highest visual discrepancy scores were defined as preferring the visual modality; subjects with the highest auditory scores were classified as preferring the auditory modality. Subjects were then randomly placed into instructional groups favoring either the preferred or the non-preferred modality. Four instructional groups were thus obtained: auditory-auditory, visual-visual, auditory-visual, and visual-auditory. Subjects were then given 30 minutes of instruction on 8 syllables. At the end of that time, each was tested on recognition of the syllables. No significant differences were found between the 4 groups. Neither an auditory nor a visual approach was found to be superior.

Stayton and Fuller (372) studied the ability to remember unstructured visual and auditory material and the ability to combine the 2 and correlated these abilities with reading level. Mean CA for the subjects was 18-6 and mean IQ, 53. The *Wide Range Achievement Test* (WRAT), the multiple choice version of the *Benton Visual Retention Test*, the *WAIS Digit Span*, and a paired associate task were all given. Coefficients of correlation were computed between CA, MA and the 4 tests. Coefficients of .55, .43, and .34 were found between the WRAT and digit span, the Benton, and the paired associate tasks, respectively. A coefficient of .59 was found between the WRAT and MA. With MA and CA held constant, coefficients of .15, .24, and .16 were found between the WRAT and the Benton, digit span, and paired associate tasks, respectively. The authors conclude that their findings point out the importance of auditory, visual, and paired associate memory in relation to beginning reading achievement.

Knapczyk and Livingston (208) explored a teacher initiated prompting procedure to initiate question asking and investigated the relationship of this training to reading comprehension. Subjects were

2 pupils in a junior high special education class who were selected because observations of them for a 3-day period showed that they asked no questions. After collection of baseline information, the teacher prompted Subject 1 to ask questions on 3 successive days. Following this training, question asking was extinguished and then reinforced in a one-day training with 2 prompts. Subject 2 received only the first training part of the program. Rate of question asking rose for both subjects and higher levels of comprehension were observed.

The following studies all appeared in monograph form. All used the same population and similar design procedures. Blake (31) proposed to find out how effectively retarded and normal subjects could identify the main idea of a selection using 2 types of orienting stimuli: preview questions and preview summaries. Retarded subjects had a mean MA of 110.19 and a mean CA of 165.63. Two groups of normal subjects were used—one with the retarded group for MA, and the other, equated for CA with the retarded group. Two treatment groups were used. For Treatment 1, each selection was preceded by a question; for Treatment 2, each selection was preceded by a summary. Selections were multiple paragraphs in length in which there was a stated main idea. Two selections at each instructional level, 2 through 12, were prepared. Each subject started at his instructional level and read until he failed at 2 successive reading instructional levels. Both normal groups exceeded the retardates in performance.

Dunman (89) investigated the relative effectiveness of italicizing main ideas or preview summaries on the ability to identify main ideas in connected discourse. Subjects were 30 educable mentally retarded pupils and 2 groups of normals, one matched for CA and one for MA. Subjects in each group were randomly assigned to one of 2 treatment groups. In Treatment 1, main ideas were italicized; all Treatment 2 selections had summaries preceding them. Two selections appeared at each reading instructional level, 2 through 12. Multiple choice questions concerning the main idea followed each selection. Subjects read until they reached level 12 or were unsuccessful in choosing the correct main ideas in 2 successive levels. No significant difference was noted between treatments. Older normals scored higher than either of the other groups, and younger normals scored higher than retardates.

The purpose of the report by Richmond (316) was to study the influence of orienting materials on identifying supporting ideas.

Again, subjects were retardates and 2 groups of normals, one matched with retardates on CA and the other, on MA. In Treatment 1, supporting ideas were underlined; for Treatment 2, a summary pertaining to the supporting ideas preceded each selection. Two selections were prepared at each reading level, 2 through 12. Subjects started with materials at their reading levels. Test questions on which the analysis was based followed each selection. Treatments were equally effective for each group. Older normals achieved significantly better than did the other 2 groups, and younger normals did better than retardates.

A treatments × levels model research design was used by Little (230) in his study of the effects of preview information on identification of supporting ideas in longer selections. The levels were retarded and normal subjects and treatments were 2 variations of orienting materials: preview questions and preview summary. Subjects were retardates (R), a normal group equated with R's on MA, and a normal group equated on CA with R's. For Treatment 1, selections were preceded by a set of questions; for Treatment 2, by a summary. Both questions and summaries were related to the main idea and to supporting ideas and details of selections. Selections were more than one paragraph in length and had stated main and supporting ideas. There were 22 selections, 2 at each reading instructional level, 2 through 12. Subjects began reading selections at their instructional levels and continued until they failed 2 consecutive selections. The criterion measure was a set of multiple choice questions sampling the supporting ideas of each prose selection. Both normal groups outperformed the R's.

The relative influence of the ratio of relevant to irrelevant dimensions on the attainment of concepts in normals and in retardates was studied by May (249). The number of correct responses to 15 positive and 5 negative instances of 3 concepts was determined. Subject groups were retardates (R) with a mean MA of 108.69 and a mean CA of 169.94, CA-matched normals, and MA-matched normals. Subjects were given booklets consisting of 3 sets of study, practice, and test lists for the 3 concepts. In the study set, a listing of the relevant dimensions of each concept was given followed by 8 positive instances of the concept. The practice set included 15 positive and 5 negative instances of each concept. A test set was given immediately following the practice set and contained 8 positive and one negative instance of each concept. Mean comparisons showed that the normal groups exceeded the performance of the R's but did not differ between themselves.

Schelly (346) used a 2 × 3 × 4 treatments by levels design in her report. The levels were educable mentally retarded children, CA of 167.1 and MA of 110.5; a CA equated normal group; and an MA equated normal group. The 2 treatments were simultaneous versus successive exposure of 3 concepts. Each treatment contained 4 trials. Subjects were given booklets representing the concepts in the 2 treatments. For the successive treatment, the concepts were presented one to a page; for the simultaneous presentation, concepts were presented on one page. A 10-item multiple choice test was used in assessing the effectiveness of the 2 treatments. There were no differences in performance of retardates versus younger normal subjects equated for MA. Older normals did better than either of the other groups. Successive presentation of concepts was more effective for retarded and younger normal subjects. There was no difference in the effectiveness of the treatments for older normal subjects.

Again, an educable mentally retarded (EMR) group and 2 groups of normals, equated for MA or CA with the EMR's were used by Hurley (171) in his research report. The purpose of the study was to examine the effectiveness of 2 ratios of positive to negative instances on the attainment of 3 concepts. Pupils were given booklets on the 3 concepts in a study-test format. There were 4 tests, each with a possible maximum score of 10. Every 4 study instances employed a ratio of 3:1 or 1:3 positive to negative instances of the concept. Each concept was studied in 15 positive and 5 negative instances in Treatment 1 and in the reverse ratio in Treatment 2. The older normal group tended to be superior to the other 2 groups on the tests with no difference between the EMR and younger normal group. Treatment 1 was more effective than Treatment 2.

The effectiveness of normal versus retarded pupils in identifying word meanings from context under 2 conditions was considered by Bracewell (41). Two groups of normal subjects were used: retarded subjects (R); younger normals equated on MA with R; and older normals equated with R's on CA. The task consisted of 10 low meaningfulness paralogs paired with 10 synonyms. Pairs were presented in a short paragraph prose selection. The 2 treatments given consisted of a recitation list on 4 trials for Treatment 1, and a recitation list on the first trial only in Treatment 2. Older normals surpassed the other 2 groups in amount learned and in rate of learning. No differences were found between the R group and the younger normals. No differences were found for the treatments indicating that the amount of recitation did not affect the learning process.

A project investigating the effectiveness of direct versus indirect context clues was reported by Allen (6). The context clues used were direct or synonyms and indirect or similes. Retardates, younger normals equated for MA, and older normals equated for CA with retardates were subjects. All groups had higher performance when direct clues were used. Older normals performed better on the measures used than did the other 2 groups.

The study by Hosford (165) was concerned with the relative influence of 2 teaching strategies, explicitness and discovery, on learning word meanings. Subjects were 15 retarded pupils, 15 normals equated on MA with the retardates, and 15 normals equated on CA with the retardates. In the discovery treatment, subjects were given an illustration and then were to identify new word meanings without additional explanation. The explicit treatment provided an illustration and statement of meanings of the new words. Each group was given 4 trials with 10 new words in each trial. The 2 teaching strategies led to comparable performance and were equally effective for each of the 3 groups. Older normals performed better than did the other 2 groups.

May (248) examined the ability of retarded and normal subjects to identify new words in context when relevant clues are presented under 2 conditions of isolation. One group of retarded subjects and 2 groups of normals were used. Normals were matched with retardates for CA in one group and for MA in the other. Subjects were asked to associate an unknown word (paralog) with a known word (synonym). Subjects were to underline the paralog and its synonym in either one trial (Treatment 2) or in 4 trials (Treatment 1). Treatment 1 was found more effective for the younger normal group; Treatment 2, for the retarded group; and there was no difference between treatments for the older normal group.

Tucker (393) researched the role of amount of coding distinctive features in the learning of homonyms. Subjects were divided into 3 groups of 30 each: retarded, MA-equated normals, and CA-equated normals. Groups were randomly assigned to 2 treatments. Treatment 1 consisted of 4 study lists with distinctive features coded; Treatment 2, one study list with distinctive features coded and 3 uncoded study lists. The CA-equated normals scored higher than did the other 2 groups on the criterion tests. No differences were found between the retarded and MA-equated normal groups. Results indicated no differences between the 2 treatments.

A Lindquist Type III, $3 \times 2 \times 4$, design was used by Hurley (170) in his investigation of 2 treatments for learning homonyms.

Retardates and 2 groups of normals, one equated for MA and one for CA, were subjects. A total of 10 homonym pairs were taught in each of 2 treatments. In the first treatment, all homonym pairs were contiguous on each of the 4 study lists given. In the second treatment, homonym pairs were contiguous for the first trial only and homonyms appeared in random order for the final 3 study lists. No subject achieved mastery of the homonyms under the second treatment and only 4 older normals did so by the fourth trial of the first treatment. Older normals exceeded both of the other groups in amount learned.

Blake (30) examined the ability of retarded and normal subjects to learn homonyms under a coding and a contiguous focus. Subjects were a retarded group and 2 groups of normals, one with MA's equivalent to the retarded group's and the other with CA's equivalent to the retarded group's. Homonyms were 10 sets of paralogs and the definitions given were high frequency words. In the contiguity treatment, homonym sets appeared next to each other in sequence. In the coding treatment, members of homonym sets were contiguous and also their distinctive features were underlined. The criterion measure was the number of homonyms correct on a test list of 20. In general, older subjects did better than the other 2 groups. Older normals performed better with coding than with contiguity. Younger normals achieved higher scores under the contiguity treatment. Retardates achieved equally with either treatment.

Williams (414) proposed to examine the role of 2 amounts of familiarization on the learning of synonyms. Three groups of subjects were used: a mentally retarded group, a MA-equated normal group, and a CA-equated normal group. The 30 subjects in each group were randomly assigned to the 2 treatment groups. For Treatment 1, three stimulus familiarization lists preceded the second study list in the task. In Treatment 2, one stimulus familiarization list was given before the second study list. The instrument was made up of 10 low meaningful paralogs. There were 4 study lists and 4 test lists. Older normals performed better than did the other 2 groups; no difference was found between the retarded group and the younger normals. Treatment 1 was found to be better than Treatment 2 generally. However, the performance of the retardates was not enhanced by the 3 practice sessions.

Varying amounts of verbal mediation were studied by Frye (115) to determine the most effective amount in learning synonyms. Three groups of subjects were used: retardates (R), normals equated with R's on CA, and normals equated with R's on MA. Four trials

were used. In Treatment 1, mediation training was given on 3 trials; in Treatment 2, on one trial. Ten one-syllable common words were paired with low-meaningfulness paralogs and were presented in a study-test procedure. The mediation treatments had similar effects. There was an overall superior performance on the part of older normals, but younger normals performed better than R's.

Blake (32) studied 2 techniques of learning synonyms using normal and retarded subjects. Subjects were randomly assigned to either a verbal mediation or a stimulus familiarization subgroup in learning synonyms. One group of retardates (R), one group of normals equated with R's on MA, and a group of normals equated with R's on CA were subjects. Verbal mediation appeared to be the better approach for all groups.

Annotated bibliography[1]

1. AARONS, LOUIS. Subvocalization: aural and emg feedback in reading. *Perceptual and Motor Skills*, 1971, 33, 271-306. (IV-11)

   Looks at the relationship between speech-muscle activity and oral and silent reading in 12 male medical students aged 21 to 25.

2. ACKERMAN, MARGARET D. Acquisition and transfer value of initial training with multiple grapheme-phoneme correspondences. *Journal of Educational Psychology*, August 1973, 65, 28-34. (IV-5)

   Explores in 60 kindergarten children the question of introducing variable or constant sound-symbol correspondences in early reading training, and 2 different approaches to this type of training.

3. ADAMS, MARTIN R.; LEWIS, JEFFREY I.; & BESOZZI, THOMAS E. The effect of reduced reading rate on stuttering frequency. *Journal of Speech and Hearing Research*, December 1973, *16*, 671-675. (IV-11)

   Examines the oral reading of 18 stutterers, with an average age of about 22, under conditions requiring the subjects to read one word per second compared to normal rate.

4. AHERN, PATRICIA RUSSELL, & WHITE, DARYL E. What do you do? *Journal of Reading*, February 1974, *17*, 344-351. (II)

   Reports the results of a survey of 47 reading consultants concerning their role in influencing reading instruction in their locales.

5. ALEXANDER, J. ESTILL, & FILLER, RONALD CLAUDE. Group cohesiveness and reading instruction. *The Reading Teacher*, February 1974, 27, 446-450. (I)

   Reviews and discusses the available research on the role of cohesiveness in psychological groups.

6. ALLEN, JERRY. Type of context clue and identifying word meanings from context. *Journal of Research and Development in Education*, 1973, 6, monograph, 71-77. (VI)

   Tests 2 types of context clues (synonyms and similes) as to their effectiveness in helping a student identify new word meanings from context and out of context. Uses 30 retarded, 30 younger normals (MA 8 to 11), and 30 older normal subjects (CA 10 to 16.9).

1. Numbers have been assigned to major and subheadings in the first part of the summary as cross-reference aids. At the end of each item in the *Annotated bibliography*, a number in parentheses shows the classification under which the item is discussed.

7. ALLEY, ROBERT D.; DAVISON, RONALD G.; KELLEY, WALTER T.; & KIMBLE, RAYMOND L. A reading improvement strategy. *Journal of American Indian Education*, January 1974, *13*, 14-20. (V-7)

   Presents findings on an instructional program designed for students in grades 9-12 who exhibited a minimum of 2 years deficiency in reading achievement.

8. ALTSCHULL, J. HERBERT. The journalist and instant history: an example of Jackal syndrome. *Journalism Quarterly*, Autumn 1973, *50*, 489-496. (III-16)

   Presents an analysis of media reactions on the joint appearances on nationwide television of Kennedy and Nixon during the 1960 presidential campaign.

9. AMATO, ANTHONY; EMANS, ROBERT; & ZIEGLER, ELSIE. The effectiveness of creative dramatics and storytelling in a library setting. *The Journal of Educational Research*, December 1973, *67*, 161-162, 181. (IV-13)

   Compares the effect of storytelling and creative dramatics (improvised drama) on interests in reading, reading achievement, self-image, creativity, empathy, and library use. A 2-year study at 9 libraries was conducted using 298 fourth and fifth grade pupils.

10. AMES, WILLIAM E. *A history of the national intelligencer*. Chapel Hill: University of North Carolina Press, 1972. (III-11)

    Presents a biography of a newspaper which is a vital part of the history of the early nineteenth century American journalism.

11. ANDERSON, CLARENCE. A study of accountability in the community college reading program. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 7-11. (V-8)

    Evaluates a college reading program using the 176 freshman reading course participants.

12. ANDREWS, LARRY. Reading comprehension and three modes of prereading assistance. *Journal of Reading Behavior*, Fall 1972/1973, *5*, 237-241. (IV-10)

    Investigates the effect of directed reading questions, cognitive organizer, and a combination of the 2 on the reading comprehension of 187 seventh grade students.

13. ARDOIN, BIRTHNEY. A comparison of newspapers under joint printing contracts. *Journalism Quarterly*, Summer 1973, 50, 340-347. (III-2)

Analyzes the content of 36 newspapers under joint printing agreements during 2 specific time periods of major news to see the effect of court and congressional actions on the papers, and whether the newspapers preserve 2 separate news voices in one community.

14. ASHER, STEVEN R., & GOTTMAN, JOHN M. Sex of teacher and reading achievement. *Journal of Educational Psychology*, October 1973, 65, 168-171. (IV-2)

Compares the reading achievement of 1,246 fifth graders, some of whom had male teachers and some females, in order to assess the effect of teacher sex on reading.

15. AYERS, JERRY B. Principals' perceptions of importance of reading readiness factors. *Perceptual and Motor Skills*, April 1974, 38, 666. (II)

Reports the perceptions of 338 principals to the importance of 8 factors in beginning reading.

16. AZCOAGA, JUAN E. Motivational and attitudinal influences on reading development. In Robert Karlin (Ed.) Reading for all. *Proceedings of the Fourth IRA World Congress on Reading*, 1972. Pp. 51-55. (I)

Presents briefly research which examines the role of emotional and physical conditions in the development of reading.

17. BAGDIKIAN, BEN H. Newspapers: learning (too slowly) to adapt to TV. *Columbia Journalism Review*, November/December 1973, *12*, 44-51. (III-2)

Analyzes 20 daily afternoon newspapers in order to determine the extent to which they provided analytic coverage of Watergate in addition to straight news coverage.

18. BAKWIN, HARRY. Reading disability in twins. *Developmental Medicine and Child Neurology*, April 1973, *15*, 184-187. (IV-14)

Investigates the incidence of reading disability in 338 pairs of same-sex twins aged 8 to 18 in an attempt to underscore a genetic basis for reading impairment.

19. BARAN, STANLEY J. Dying black/dying white: coverage in six newspapers. *Journalism Quarterly*, Winter 1973, 50, 761-763. (III-2)

Examines 6 newspapers' coverage of an event concerning blacks and whites to see if more attention is given to news about blacks or about whites.

20. BARGER, HAROLD M. Images of political authority in four types of black newspapers. *Journalism Quarterly*, Winter 1973, 50, 645-651, 672. (III-2)

Analyzes the content of 102 issues of black newspapers looking for a dominant black ideology in the images of political authority.

21. BARON, JONATHAN. Phonemic stage not necessary for reading. *Quarterly Journal of Experimental Psychology*, May 1973, 25, 241-246. (IV-9)

Compares, in 2 experiments involving 14 college subjects, the efficiency of direct visual analysis as opposed to phonemic analysis of phrases.

22. BARRON, RICHARD, & COOPER, ROSE. Effects of advance organizers and grade level upon information acquisition from an instructional-level general science passage. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 78-82. (IV-10)

Assesses the effect of advance organizers and grade level upon comprehension of 224 subjects.

23. BELMONT, IRA. Requirements of the early reading task. *Perceptual and Motor Skills*, April 1974, 38, 527-537. (I)

Reviews a number of studies that have attempted to analyze the components involved in learning to read.

24. BELMONT, IRA, & BIRCH, HERBERT G. The effect of supplemental intervention on children with low reading-readiness scores. *The Journal of Special Education*, Spring 1974, 8, 81-89. (V-5)

Compares the relative effects of perceptual, remedial, and play programs on 58 first graders deficient in prereading skills.

25. BERGER, ALLEN. Flexibility and speed in reading. In Robert Karlin (Ed.) Reading for all. *Proceedings of the Fourth IRA World Congress on Reading*, 1972, 180-191. (I)

Explores and summarizes the varying points of view in reading research studies in areas of rate and flexibility in reading.

26. BERNSTEIN, JOANNE. The changing roles of females in books for young children. *The Reading Teacher*, March 1974, 27, 545-549. (III-2)

Reviews and evaluates about 100 children's books for sex stereotyping.

27. BETA UPSILON CHAPTER, PI LAMDA THETA. Children's reading interests classified by age level. *The Reading Teacher*, April 1974, 27, 694-700. (IV-17)

Reports the reading interests of 811 boys and girls, ages 7-13 according to their age and sex.

28. BISHOP, ROBERT L. Anxiety and readership of health information. *Journalism Quarterly*, Spring 1974, 51, 40-46. (III-16)

Examines the effect anxiety has upon the readership of health information for a sample of 123 students, ages 18 to 23.

29. BLACK, F. WILLIAM. Achievement test performance of high and low perceiving learning disabled children. *Journal of Learning Disabilities*, March 1974, 7, 178-182. (IV-14)

Compares achievement test performance, including reading, of 30 matched pairs of adequate- and inadequate-perceiving 6 to 9 year olds and investigates the relationship between visual-perceptual and achievement variables.

30. BLAKE, KATHRYN. Coding, contiguity and retarded and normal pupils' learning of homonyms. *Journal of Research and Development in Education*, 1973, 6, monograph, 125-130. (VI)

Examines 30 retarded subjects (CA 10 to 16.9, MA 8 to 11), 30 MA equated normal subjects, and 30 CA equated normal subjects, and their effectiveness in homonym recognition out of context, under 2 different treatments.

31. BLAKE, KATHRYN. Preview summaries, preview questions and retarded and normal pupils' finding the main idea in connected discourse. *Journal of Research and Development in Education*, 1973, 6, monograph, 60-64. (VI)

Ascertains the effectiveness of preview questions and preview summaries on a group of 30 retarded subjects (CA 10.0-16.9), a group of 30 younger normals (CA 8.0-11.0) and a group of 30 older normals (CA 10.0-16.9) in finding the main idea of the selection read.

32. BLAKE, KATHRYN. Verbal mediation, stimulus familiarization and retarded and normal pupils' learning synonyms. *Journal of Research and Development in Education*, 1973, 6, monograph, 107-112. (VI)

Examines the effectiveness of 2 different methods of learning synonyms with retarded and normal subjects. One group of 30 normal subjects were equated with retardates on MA and another group of 30, on CA.

33. BLANEY, PAUL H. Two studies on the language behavior of schizophrenics. *Journal of Abnormal Psychology*, February 1974, 83, 23-31. (VI)

Combines cloze measures and measures using structurally ambiguous phrases in studying the reading and language behavior of 66 emotionally disturbed adult males, compared with 45 controls.

34. BLIESMER, EMERY P. 1972 review of research on college-adult reading. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 21-61. (I)

Reviews research related to reading and study skills at college and adult levels from September, 1971, to September, 1972.

35. BLIESMER, EMERY P. 1972 review of research on college-adult reading. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 217-257. (I)

Reviews over 220 research reports from September, 1971, to September, 1972, on college-adult reading.

36. BLOM, GASTON E., & WIBERG, J. LAWRENCE. Attitude contents in reading primers. In John Downing (Ed.) *Comparative reading*. New York: Macmillan, 1973. Pp. 85-104 (III-2)

Analyzes the content of primers in use in the U.S. and 12 other countries on an attitudinal scale consisting of 40 attitudinal sets.

37. BODER, ELENA. Developmental dyslexia: a diagnostic approach based on three atypical reading-spelling patterns. *Developmental Medicine and Child Neurology*, October 1973, *15*, 663-685. (IV-14)

Assesses 107 third through tenth grade dyslexics in terms of 3 distinct reading and spelling patterns, attempting to validate these error and ability patterns as tools for early diagnosis.

38. BODER, ELENA. Developmental dyslexia: a review of prevailing diagnostic criteria. In Malcolm P. Douglass (Ed.) Claremont Reading Conference. *Thirty-sixth Yearbook*, 1972. Pp. 114-125. (I)

Reviews the literature related to the diagnostic concepts of developmental dyslexia and describes 3 atypical patterns of reading and spelling for classifying dyslexic children.

39. BOGLE, MARION WARNER. Relationship between deviant behavior and reading disability: a retrospective study of the role

of the nurse. *Journal of School Health*, May 1973, 43, 312-315. (IV-14)

Correlates reading disability in 96 black sixth graders with readiness test performance, deviant behavior, and prenatal complications in the mother, then discusses the role of the nurse in early identification of children with reading problems.

40. BOWERS, THOMAS A. Newspaper political advertising and the agenda-setting function. *Journalism Quarterly*, Autumn 1973, 50, 552-556. (III-2)

Analyzes political advertising in 2 large newspapers in each of 23 states which elected both a senator and governor in 1970.

41. BRACEWELL, CAMILLA. Amount of recitation and identifying word meanings from context. *Journal of Research and Development in Education*, 1973, 6, monograph, 84-88. (VI)

Examines 3 groups of subjects' (30 retarded, MA 8-11, CA 10-16.9; 30 MA equated normals; and 30 CA equated normals) effectiveness in identifying the meanings of new words in and out of context using 2 amounts of recitation.

42. BRITTON, GWYNETH E. Sex stereotyping and career roles. *Journal of Reading*, November 1973, 17, 140-148. (III-2)

Analyzes 16 different reading text series (4,144 stories) for grades 1-10 in terms of sex stereotyping and career roles transmitted for males and females in each story.

43. BROD, NATHAN, & HAMILTON, DAVID. Binocularity and reading. *Journal of Learning Disabilities*, November 1973, 6, 574-576. (IV-1)

Induces disturbances in binocular vision of 162 fifth graders classified as good, average,and poor readers in order to determine the effect of these disturbances on reading achievement.

44. BROTHERS, ROY J. Classroom use of the Braille Code Recognition materials. *Education of the Visually Handicapped*, March 1974, 6, 6-13. (VI)

Evaluates the effect of special instructional materials on the improvement of braille reading skills of 24 subjects with a median age of 13 years.

45. BROWN, LOU; HUPPLER, BARBARA; PIERCE, LAURA; YORK, BOB; & SONTAG, ED. Teaching trainable-level students to read unconjugated action verbs. *The Journal of Special Education*, Spring 1974, 8, 51-56. (VI)

Reports the results of a program designed to teach 3 severely retarded 7 to 9 year olds how to read parts of speech that generally are difficult for retardates to learn.

46. BRYAN, TANIS H. Learning disabilities: a new stereotype. *Journal of Learning Disabilities*, May 1974, 7, 304-309. (I)

Reviews 3 areas of studies which investigate factors related to children with learning disabilities.

47. BURD, GENE. Urban magazine journalism thrives during city crises. *Journalism Quarterly*, Spring 1973, 50, 77-82, 108. (III-11)

Studies the historical parallels and similarities between urban magazine journalism at the turn of the century and magazines of the 1960's and present day.

48. CALTHROP, KENYON. *Reading together*. London: Heinemann Educational Books, 1973. (V-1)

Investigates the usage in the classroom by 600 secondary school teachers of particular prose books—novels, short-story volumes, and biographies.

49. CAMP, BONNIE W. Learning rate and retention in retarded readers. *Journal of Learning Disabilities*. February 1973, 6, 65-71. (IV-14)

Explores the relationship between learning rate patterns and long-term retention for 46 eight to eighteen year olds with severe reading disabilities.

50. CANTOR, JOANNE R., & ZILLMANN, DOLF. Resentment toward victimized protagonists and severity of misfortunes they suffer as factors in humor appreciation. *Journal of Experimental Research in Personality*, April 1973, 6, 321-329. (III-16)

Manipulates cartoon drawings with 76 male and female college students to test various factors in the appreciation of humor. Protagonists in the cartoons suffered either moderate or severe misfortune and were made to be either sympathetic or resented by the respondents.

51. CARPENTER, TERYLE, & GRAY, GORDON. Cloze assessment of cultural response variation. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*, 258-262. (IV-16)

Studies the effects of desegragation on cloze responses of 13 black and 13 white third grade pupils before and one year after desegregation.

52. CHAFFEE, STEVEN H., & MCLEOD, JACK M. Individual vs. social predictors of information seeking. *Journalism Quarterly*, Summer 1973, 50, 237-245. (III-6)

Compares the individual and social levels of analysis, in their power to predict one type of communication behavior, political information-seeking, in a survey sampling of 240 middle aged parents of tenth grade students during a campaign race.

53. CHANDLER, GEORGE. Research on books and reading in society in the United Kingdom. *International Library Review*, July 1973, 5, 277-282. (I)

Reviews a number of studies that investigated general library use and patterns of use among people in the United Kingdom.

54. CHAPMAN, CARITA A. A test of hierarchical theory of reading comprehension (abstract). *Reading Research Quarterly*, 1973/1974, 9(2), 232-234. (IV-10)

Tests a hierarchical theory of literal reading comprehension with 318 fifth grade pupils.

55. CHESTER, ROBERT D. The psychology of reading. *The Journal of Educational Research*, May-June 1974, 67, 403-411. (I)

Lists 144 research references appearing in the psychology of reading from 1933 to 1973. Summarizes findings of these studies under various headings including Intelligence, Perception, Comprehension, Cognitive Style, Personality, Language, Readability, and Hygiene.

56. CHESTER, ROBERT, & OTTO, WAYNE. Children's sight words —printed materials or oral production. *The Journal of Educational Research*, February 1974, 67, 247-252. (V-9)

Compares the degree of overlap between the Great Atlantic and Pacific Sight Word List with the Newman-Bailey list.

57. CHRISTINA, ROBERT. Do illustrations hinder or assist sight vocabulary acquisition? In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 185-189. (IV-5)

Assesses the value of illustrations for 3 types of sight vocabulary acquisition of beginning readers among 120 kindergarten children.

58. CHURCH, MARILYN. Does visual perception training help beginning readers? *The Reading Teacher*, January 1974, 27, 361-364. (IV-6)

Compares a formal with an informal visual perceptual training program, for 90 kindergarten children, on reading readiness and reading achievement.

59. CLARK, EL N., & BRADLEY, MICHAEL. Effects of desegregation on the reading achievement of sixth-grade students. In

Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 253-257. (IV-16)

Studies the effects of desegregation on reading achievement, relative to ability, of 682 black and white sixth grade pupils.

60. COBB, JOSEPH A., & HOPS, HYMAN. Effects of academic survival skill training on low achieving first graders. *The Journal of Educational Research*. November 1973, 67, 108-113. (IV-5)

Investigates the relationship between reading achievement and the classroom behaviors of attending, working, volunteering and looking around, for 18 first grade children.

61. COHEN, S. ALAN, & COOPER, THELMA. Seven fallacies: reading retardation and the urban disadvantaged beginning reader. *The Reading Teacher*, October 1972, 26, 38-45. (I)

Reviews research dealing with reading retardation as it is related to the language of the socially disadvantaged urban child.

62. COHEN, SHELDON; GLASS, DAVID C.; & SINGER, JEROME E. Apartment noise, auditory discrimination, and reading ability in children. *Journal of Experimental Social Psychology*, September 1973, 9, 407-422. (IV-7)

Examines the relationship between auditory and verbal skills and the noisiness of the home environment in 54 second through fifth grade children.

63. COLE, J. L. The relationship of selected personality variables to academic achievement of average aptitude third graders. *The Journal of Educational Research*, March 1974, 67, 329-333. (IV-15)

Investigates the relationship between self concept, attitude, and achievement in reading, language, spelling, and mathematics.

64. COLE, RICHARD R., & BOWERS, THOMAS A. Research article productivity of U.S. journalism faculties. *Journalism Quarterly*, Summer 1973, 50, 246-254. (III-2)

Cites procedures for assessing article productivity and conditions that are related to productive journal writing and identifies which of 171 U.S. journalism schools have the most productive writers. Six journals were analyzed.

65. COLEMAN, EDMUND B. Generalization variables and restricted hypotheses. *Journal of Reading Behavior*, Fall 1972/1973, 5, 226-236. (I)

Criticizes research in reading on the basis of neglecting to consider possible replication of studies using different sample of materials.

66. COLEMAN, EDMUND B., & MILLER, GERALD R. The simplest experimental design that permits multiple generalization. *Journal of Reading Behavior*, April 1974, 6, 31-40. (I)
Summarizes recent critiques of experimental designs of the "language-as-fixed-effects-fallacy."

67. COY, MICHAEL N. The Bender Visual-Motor Gestalt Test as a predictor of academic achievement. *Journal of Learning Disabilities*, May 1974, 7, 317-319. (V-11)
Investigates the predictive validity of the Bender Gestalt Test as it relates to reading and math achievement using 51 third graders.

68. CURTO, SALVATORE E., & SISTRUNK, FRANK. Opinion change as a function of the race of the experimenter, the communication source, and the subject. *The Journal of Social Psychology*, June 1972, 87, 149-150. (III-15)
Examines, in a 3-phase study, the effects of race on opinion change in terms of experimenters, communicators, and subjects. Includes 40 male high school students and 2 experimenters as subjects.

69. CUSHMAN, DONALD R. The cue summation theory tested with meaningful verbal information. *Visible Language*, Summer 1973, 7, 247-260. (IV-4)
Assesses whether differences in learning occur in 48 subjects exposed to the same meaningful verbal stimulus material through reading, listening, and reading and listening simultaneously.

70. DAHLKE, ANITA B. How well do our teachers read to learn? In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 199-203. (II)
Presents data on classroom teachers' reading test scores and compares the reading test performance for 2 samples of Wisconsin teachers.

71. DAJANI, NABIL H. Media exposure and mobility in Lebanon. *Journalism Quarterly*, Summer 1973, 50, 297-305. (III-1)
Uses 144 respondents (teens through 38 plus years) representing 2 religious communities of Lebanon to find out if the relationship between media exposure, mobility, literacy and political participation existed.

72. DANIEL, PATRICIA N., & TACKER, ROBERT S. Preferred modality of stimulus input and memory for CVC trigrams. *The Journal of Educational Research*, February 1974, 67, 255-258. (IV-4)
Investigates the effects of modality preference on learning for 105 pupils (age range: 7.5 to 8.5 years).

73. DEIULIO, ANTHONY M. Desk top graffiti: scratching beneath the surface. *Journal of Research and Development in Education*, Fall 1973, 7, 100-104. (II)

Suggests, through a study of the graffiti in the classrooms, implications for new procedures in teacher education.

74. DEL GIORNO, WALTER; JENKINS, JOSEPH R.; & BAUSELL, R. BARKER. Effects of recitation on the acquisition of prose. *The Journal of Educational Research*, March 1974, 67, 293-294. (V-8)

Compares the acquisition of facts in a prose passage between reading and recitation with 30 college preservice teacher sophomores.

75. DEMBO, MYRON H., & WILSON, DONALD A. Can poor readers read faster? *Phi Delta Kappan*, May 1973, 54, 626. (V-6)

Presents and critiques results of a speed reading course used with 1,934 seventh grade pupils.

76. DEMBO, RICHARD. Gratifications found in media by British teenage boys. *Journalism Quarterly*, Autumn 1973, 50, 517-526. (III-1)

Examines the relationship between the media and violence by studying values, media use patterns, and social behavior of 99 boys, aged 12 to 15, who were rated as aggressive or non-aggressive.

77. DENTLER, ROBERT A., & WARSHAUER, MARY ELLEN. *Big city dropouts and illiterates*. New York: Frederick A. Praeger, 1969. (III-8)

Presents a comparative study of early high school withdrawal and functional illiteracy in 131 of the largest cities in the U.S.

78. DIETERICH, DANIEL J. Annotated bibliography of research in the teaching of English: January 1, 1973 to June 30, 1973. *Research in the Teaching of English*, Winter 1973, 7, 409-445. (I)

Annotates 190 articles of research in the teaching of English in 6 different areas.

79. DIETRICH, DANIEL J. Annotated bibliography of research in the teaching of English July 1, 1973 to December 31, 1973. *Research in the Teaching of English*, Spring 1974, 8, 116-139. (I)

Annotates 115 research articles related to the teaching of English. Includes some reading research.

80. DITTMAN, DONALD R. Reading clinics—success or failure? *Educational Leadership*, May 1974, *31*, 710-711. (V-10)

Examines standardized test and classroom performance of more than 700 high school seniors, including reading clinic referrals.

81. DONLAN, DAN. Parent versus teacher: the dirty word. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 224-231. (III-15)

Examines 18 articles from educational journals and the controversial books which were listed in these articles and surveys teachers' reasons for not using the books. Does a parent survey reactions to language in adolescent books.

82. DOWNING, JOHN. Cognitive factors in dyslexia. *Child Psychiatry and Human Development*, Winter 1973, 4, 115-120. (I)

Discusses reading disability in terms of cognitive confusion and how various cognitive factors interfere with children who are learning to read.

83. DOWNING, JOHN. Is literacy acquisition easier in some languages than in others? *Visible Language*, Spring 1973, 7, 145-154. (I)

Compares the ability of students of 14 different nations (Argentina, Denmark, Finland, France, Germany, Great Britain, Hong Kong, Israel, India, Japan, Norway, the Soviet Union, Sweden, and the United States) to develop literacy in their native tongue.

84. DOWNING, JOHN. A summary of evidence related to the cognitive clarity theory of reading. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 178-184. (I)

Reviews research related to the Cognitive Clarity Theory.

85. DUBOIS, NELSON F. Selected correlations between reading achievement and various visual abilities of children in grades 2 and 4. *Perceptual and Motor Skills*, September 1973, 37, 45-46. (IV-6)

Controls for effects of performance on verbal based tests of intellectual efficiency, then attempts to correlate various perceptual skills with reading achievement in 60 children at grades 2 and 4.

86. DUBOIS, NELSON F., & BROWN, FOSTER LLOYD. Selected relationships between Frostig scores and reading achievement

in a first grade population. *Perceptual and Motor Skills*, October 1973, 37, 515-519. (IV-6)

Assesses the ability of the Frostig test to measure skills related to reading achievement beyond those measured by 2 other reading-related tests with 163 first graders.

87. DULIN, KEN L. The sociology of reading. *The Journal of Educational Research*, May-June 1974, 67, 392-396. (I)

Reviews selected research reported in the sociology of reading between 1933-1973. A 45-item bibliography accompanies the review.

88. DUNLOP, DONALD B.; DUNLOP, PATRICIA; & FENELON, BERNARD. Vision-laterality analysis in children with reading disability: the results of new techniques of examination. *Cortex*, June 1973, 9, 227-236. (IV-1)

Compares 15 reading disabled children to 15 normals, ranging in age from 7 to 12, in terms of visual defects and crossed laterality, and assesses a new technique for identifying the controlling eye and its ability to differentiate between the groups and predict reading deficit.

89. DUNMAN, LINDA. Preview summaries and coding: aids in the identification of main ideas with normal and retarded subjects. *Journal of Research and Development in Education*, 1973, 6, monograph, 65-70. (VI)

Determines if various attention-focusing materials differ in their effectiveness in identifying main ideas in connected discourse. Subjects were 30 retardates (CA 10.0 to 16.9), 30 younger normals (CA 8.0 to 11.0), and 30 older normals (CA 10.0 to 16.9).

90. DURR, WILLIAM K. Computer study of high frequency words in popular trade juveniles. *The Reading Teacher*, October 1973, 27, 37-42. (IV-9)

Analyzes 80 library books, chosen according to their popularity in the primary grades, to determine the number of times each word appeared in the total number of selections.

91. DUSCHA, JULIUS, & FISCHER, THOMAS. *The campus press: freedom and responsibility*. Washington, D. C.: American Association of State Colleges and Universities, 1973. (III-11)

Presents a study of student newspapers on college and university campuses during the late 1960's and early 1970's.

92. DWYER, CAROL A. Sex differences in reading: an evaluation and a critique of current theories. *Review of Educational Research*, Fall 1973, 43, 455-467. (I)

Reviews studies that deal with the effect of sex differences on reading achievement and concludes that cultural and sex role expectations are primarily responsible for poor reading achievement in boys.

93. EBERWEIN, LOWELL. What do book choices indicate? *Journal of Reading*, December 1973, *17*, 186-191. (III-17)

Analyzed the book choices of 150 grade 6, 7, and 8 children and their choices of book titles from a reading interest inventory, to determine pupils' interests.

94. EKWALL, ELDON E. Should repetitions be counted as errors? *The Reading Teacher*, January 1974, 27, 365-367. (IV-11)

Measures the frustration reading level of 32 boys and 32 girls from third, fourth, and fifth grade on an informal reading inventory to see if repetitions should be counted as errors.

95. EMANS, ROBERT, & FOX, SHARON E. Teaching behaviors in reading instruction. *The Reading Teacher*, November 1973, 27, 142-148. (I)

Summarizes a review of the literature on teaching behaviors and their effects on child learning in the language arts.

96. EMANS, ROBERT, & HARMS, JEANNE MCLAIN. The usefulness of linguistically-based word generalizations. *Elementary English*, September 1973, 50, 935-936. (IV-8)

Reports a study of the applicability of spelling patterns to syllables and to whole words. The sample of 1,853 words used were randomly selected by the author from 10 per cent of a list of graded words beyond the primary level.

97. ERICKSON, LAWRENCE, & OTTO, WAYNE. Effect of intra-list similarity and impulsivity-reflectivity on kindergarten children's word recognition performance. *The Journal of Educational Research*, July-August 1973, 66, 466-470. (IV-5)

Examines the relative learning of 80 impulsive and reflective kindergarten beginning readers in relation to lists of similar and dissimilar words.

98. ESTES, THOMAS H., & VAUGHAN, JOSEPH L., JR. Reading interest and comprehension: implications. *The Reading Teacher*, November 1973, 27, 149-153. (IV-17)

Tests the effect that interest has in determining reading comprehension of 46 fourth graders (reading level at least 4.0).

99. EVANS, RONALD V. The effect of transformational simplification on the reading comprehension of selected high school students. *Journal of Reading Behavior*, Fall 1972/1973, 5, 273-281. (IV-18)

Investigates the comprehension of 24 high school seniors (reading between seventh and ninth grade level) of simplified and unsimplified versions of the same reading materials.

100. FATHI, ASGHAR. Diffusion of a 'happy' news event. *Journalism Quarterly*, Summer 1973, 50, 271-277. (III-1)

Examines the pattern and process of diffusion of the "happy" news of Prime Minister Trudeau's marriage from 186 telephone interviews. Includes time lapse and source of exposure.

101. FEDLER, FRED. The media and minority groups: a study of adequacy of access. *Journalism Quarterly*, Spring 1973, 50, 109-117. (III-1)

Analyzes the amount and type of publicity received in the news media by 20 minority groups and 20 comparable, established groups.

102. FEELEY, JOAN T. Interest patterns and media preferences of middle-grade children. *Reading World*, March 1974, *13*, 224-237. (IV-17)

Develops and administers a media interest inventory to 532 grade 4 and 5 pupils. Analyses were conducted by sex and interest factors were identified.

103. FELDMAN, KATHERINE VORWERK, & KLAUSMEIER, HERBERT J. Effects of two kinds of definition on the concept attainment of fourth and eighth graders. *The Journal of Educational Research*, January 1974, 67, 219-223. (IV-9)

Assesses the relative effectiveness of definitions which varied in completeness and difficulty using 59 fourth and 60 eighth graders.

104. FELTON, GARY S., & FELTON, LYNN S. From ivory tower to the people: shifts in readability estimates of American presidential inaugural addresses. *Reading Improvement*, Winter 1973, *10*, 40-44. (III-3)

Analyzes all 47 presidential inaugural speeches in terms of level of reading difficulty.

105. FENELON, BERNARD; HOLLAND, JOHN TERENCE; & JOHNSON, CHRISTINE. Spatial organization of the EEG in children with reading disabilities: a study using Nitrazepam. *Cortex*, December 1972, *8*, 444-464. (IV-1)

Examines the effect of an anti-distractor drug on the behavior and reading ability of 59 subjects in the 6 to 12 age range.

106. FINKENBINDER, RONALD L. A descriptive study of the Goldman-Fristoe-Woodcock test of auditory discrimination and selected reading variables with primary school children. *The Journal of Special Education*, Summer 1973, 7, 125-131. (IV-7)

Correlates achievement on the *GFW* of 242 kindergarten through third graders with various reading related variables; assesses

the *GFW*'s ability to predict reading achievement; and attempts to establish the reliability of the *GFW*.

107. FLEMING, JAMES T.; OHNMACHT, FRED W.; & NILES, JEROME A. Effects of selected strategies and contextual constraint on cloze performance. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 92-100. (IV-18)

Presents a study testing 5 different ways for deleting words on cloze tests with 3 different levels of context, using 30 graduate students as subjects.

108. FOERSTER, LEONA M. Language experience for dialectically different black learners. *Elementary English*, February 1974, *51*, 193-197. (I)

Classifies the results of studies which deal with dialect differences in developing a rationale for utilization of language experience with black children.

109. FOLLMAN, JOHN, & LOWE, A. J. Empirical examination of critical reading and critical thinking—overview. *Journal of Reading Behavior*, Summer 1973, 5, 159-168. (I)

Summarizes the results of 2 parallel series of 3 sets of statistical analyses of critical reading, critical thinking reading, scholastic aptitude and achievement tests and subtests with 58 fifth graders and 57 twelfth graders.

110. FOLLMAN, JOHN; LOWE, A. J.; & PFOST, PHILIP. Reading comprehension: the empirical literature. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 294-303. (I)

Reviews the reading test literature of reading comprehension.

111. FOWLER, ELAINE D. Predicting reading achievement of Spanish-speaking first grade children. *Reading Improvement*. Winter 1973, *10*, 7-11. (V-11)

Determines the predictive efficiency of a listening capacity test for the reading achievement of 99 Spanish-speaking first grade children.

112. FRANCIS, R. D.; COLLINS, J. K.; & CASSEL, A. J. The effect of reading tuition on academic achievement: volunteering and methods of tuition. *British Journal of Educational Psychology*, November 1973, 43, 298-300. (V-8)

Tutors 26 university volunteers in reading skills with mechanical aids and 27 with no mechanical aids, then correlates this information with comprehension and formal examination performance.

113. FREED, BARBARA F. Secondary reading—state of the art. *Journal of Reading*, December 1973, *17*, 195-201. (V-1)

Ascertains the current practices in secondary reading through 2 questionnaires sent to 485 school systems (state department survey and school district survey).

114. FRY, MAURINE A., & JOHNSON, CAROLE SCHULTE. Oral language production and reading achievement among selected students. *Journal of American Indian Education*, October 1973, *13*, 22-27. (IV-16)

Explores the relationship between linguistic production and reading facility in 42 second graders, assessing variance due to sex and cultural differences.

115. FRYE, SUE. Verbal mediation in the learning of synonyms by retardates and normals. *Journal of Research and Development in Education*, 1973, 6, monograph, 101-106. (VI)

Assesses the effectiveness of using varying amounts of verbal mediation training in the learning of synonyms. The subjects were 30 retardates (CA 10 to 16.9, MA 8 to 11), 30 younger normals equated with retardates on MA, and 30 older normals equated with retardates on CA.

116. FUNKHOUSER, G. RAY. Trends in media coverage of the issues of the 60's. *Journalism Quarterly*, Autumn 1973, *50*, 533-538. (III-2)

Analyzes contents of weekly news magazines and the *Readers' Guide to Periodical Literature* for a survey of media from 1960 to 1970.

117. FUNKHOUSER, G. RAY, & MACCOBY, NATHAN. Tailoring science writing to the general audience. *Journalism Quarterly*, Summer 1973, *50*, 220-226. (I)

Summarizes the findings of a study done to test the worthiness and possibilities of manipulating textual variables in science writing as applied to the needs of the practicing journalist, the educator, and the scientist who want to communicate their work to a lay audience.

118. GALLOWAY, PRISCILLA. How secondary students and teachers read textbooks. *Journal of Reading*, December 1973, *17*, 216-219. (V-7)

Tests and compares the ability of eleventh grade students and teachers to read subject textbooks in a Toronto school.

119. GARON, PHIL. The pseudo-event, the eco-activist, and the public. In David M. Rubin & David P. Sachs (Eds.) *Mass media and the environment: water resources, land use and atomic*

energy in California. New York: Praeger, 1973. Pp. 108-113. (III-2)

Traces a news report of a pseudo-event from a news conference to the treatment in the print and broadcast media.

120. GARRY, V. V. Competencies that count among reading specialists. *Journal of Reading*, May 1974, *17*, 608-613. (II)

Presents the responses of specialized reading personnel in the Pennsylvania public schools to a list of 50 task competencies.

121. GASCON, G., & GOODGLASS, H. Reading retardation and the information content of stimuli in paired associate learning. *Cortex*, December 1970, *6*, 417-429. (IV-14)

Compares 21 reading retarded third graders to 21 normals with respect to the learning and retention of associations between high versus low informational auditory and verbal stimuli.

122. GILLESPIE, JOHN T., & SPIRT, DIANA L. *The Young Phenomenon: paperbacks in our schools*. Chicago: American Library Association, 1972. (III-13)

Presents and discusses the findings of 2 surveys, one in 1967 and one in 1970, on the use of paperbacks in schools. Respondents totaled 4,440 in 1967 and 435 in 1970.

123. GLASS, GERALD G., & BURTON, ELIZABETH H. How do they decode? Verbalizations and observed behaviors of successful decoders. *Education*, September/October 1973, *94*, 58-64. (IV-9)

Utilizes observations, interviews, and introspective data in determining what word attack skills are used by 15 second and 15 fifth graders, all classified good readers.

124. GOLDBERG, HERMAN KRIEGER, & GUTHRIE, JOHN T. Evaluation of visual perceptual factors in reading disability. *Journal of Pediatric Opthalmology*, February 1972, *9*, 18-25. (IV-6)

Presents an investigation to relate visual sequential memory and visual memory to reading in 81 normal readers (IQ 98.27), and 43 disabled readers (IQ's above 80), then examines a simpler test.

125. GOLDMAN, MARGARET, & BARCLAY, ALLAN. Influence of maternal attitudes on children with reading disabilities. *Perceptual and Motor Skills*, February 1974, *38*, 303-307. (IV-14)

Analyzes attitudes expressed by mothers of 38 retarded readers who were average or above in intelligence and showed no marked physical and/or emotional problems.

126. GOODACRE, ELIZABETH J. Reading research—1972. *Reading*, March 1973, 7, 15-23. (I)

Reviews reading research in Britain during 1972. Includes such topics as dyslexia, remedial provision, length of schooling, language and reading, materials and medium, and reading standards.

127. GOODACRE, ELIZABETH J. Reading research in Britain—1973. *Reading*, March 1974, 8, 14-20. (I)

Presents a review of 22 reading studies published in Britain. Categorizes the research under 5 headings.

128. GOOLSBY, THOMAS M., JR., & STOLTMAN, JOSEPH P. Effects of an individualized reading curriculum in Southern Appalachia. *Reading Improvement*, Winter 1973, *10*, 57-61. (V-5)

Analyzes reading achievement of 77 third grade students across 3 ability levels under traditional and individualized reading programs utilizing social studies materials.

129. GOUGH, PAULINE B. Sexism in basal readers: a continuing trend. *Indiana Reading Quarterly*, Spring 1974, 6, 27-30. (III-2)

Reviews some literature on sexism in basal readers and examines the male-female character ratio in 2 third grade basal readers.

130. GREDLER, GILBERT R. Readiness for school: a look at some critical issues. In Margaret Clark and Alastair Milne (Eds.) *Reading and related skills*. London, England: Ward Lock Educational, 1973. Pp. 37-45. (I)

Reviews the literature concerning some major issues on readiness for school; studies from both the United States and Europe are considered.

131. GREENO, JAMES G., & NOREEN, DAVID L. Time to read semantically related sentences. *Memory and Cognition*, January 1974, 2, 117-120. (IV-8)

Investigates reading rate of sentences with different kinds of relationships and in various orders in 8 paid subjects.

132. GROENENDAAL, H. A., & BAKKER, D. J. The part played by mediation processes in the retention of temporal sequences by two reading groups. *Human Development*, 1971, *14*, 62-70. (IV-6)

Separates 30 seven year olds and 26 ten year olds into groups of above average and below average readers, identifies good and poor mediators in both groups, and examines their ability to perceive and retain meaningful and meaningless figures.

133. GROFF, PATRICK. The topsy-turvy world of "sight" words. *The Reading Teacher*, March 1974, 27, 572-578. (I)

Reviews books discussing the methodology of reading which have been published since 1970.

134. GURALNICK, MICHAEL J. Alphabet discrimination and distinctive features: research review and educational implications. *Journal of Learning Disabilities*. August/September 1972, 5, 428-434. (I)

Reviews literature relevant to perceptual discrimination of letters and suggests procedures to facilitate such discrimination.

135. GUTHRIE, JOHN T. Models of reading and reading disability. *Journal of Educational Psychology*. August 1973, 65, 9-18. (IV-14)

Compares the development of phoneme-grapheme association skills in 48 good and poor readers, ages 7 to 9, in order to shed light on 2 basic categories of reading models.

136. GUTHRIE, JOHN T. Reading comprehension and syntactic responses in good and poor readers. *Journal of Educational Psychology*, December 1973, 65, 294-299. (IV-10)

Examines differences in 36 ten year olds, both good and poor readers, in terms of silent reading comprehension, different form classes, and differential use of syntactic cues in silent reading.

137. GWALTNEY, WAYNE K., & ROBINSON, RICHARD. The effect of time of day on reading improvement courses. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 40-43. (V-8)

Determines the effect of time of day on a reading improvement course and the effectiveness of the course in raising reading achievement scores of 69 university subjects.

138. HAASE, ANN MARIE BERNAZZA, & AIELLO, THOMAS. The effect of sonic affect on serial learning. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 244-252. (IV-5)

Determines the effects of 3 levels of sonic affect on serial learning of 60 fifth grade pupils.

139. HADDAD, WADI'D. The interaction between science and society in the Arabic press of the Middle East. *Science Education*, January/March 1974, 58, 35-49. (III-2)

Identifies and analyzes statements in 8 Middle Eastern magazines and 7 newspapers related to the interaction between science and society.

140. HALL, VERNON C., & TURNER, RALPH R. The validity of the "different language explanation" for poor scholastic performance by black students. *Review of Educational Research*, Winter 1974, 44, 69-81. (I)

Reviews the research concerned with nonstandard English dialect and its impairing influence on the performance of lower class blacks.

141. HAMMILL, DONALD; GOODMAN, LIBBY; & WIEDERHOLT, J. LEE. Visual-motor processes: can we train them? *The Reading Teacher*, February 1974, 27, 469-478. (I)

Reviews and discusses the research literature about the Frostig-Horne materials and the Kephart-Getman techniques used in the schools.

142. HANNEMAN, GERHARD J., & GREENBERG, BRADLEY S. Relevance and diffusion of news of major and minor events. *Journalism Quarterly*, Autumn 1973, 50, 433-437. (III-16)

Presents a study testing individual relevances versus media determined conceptions of news value using 228 subjects for a minor event and 147 for a major event.

143. HANSEN, HARLAN S. The home literary environment—a follow-up report. *Elementary English*, January 1973, 50, 97-98, 122. (III-8)

Classifies the factors within the home literary environment which had greatest impact on reading attitude in a follow-up study of one which analyzed the home environment of 48 fourth graders.

144. HARDY, MADELINE I. The development of beginning reading skills: recent findings. In Margaret Clark and Alastair Milne (Eds.) *Reading and related skills*. London, England: Ward Lock Educational, 1973. Pp. 46-56. (I)

Presents a brief review of various research projects carried out on beginning reading skills.

145. HARDYCK, CURTIS. The elimination of sub-vocal speech activity during reading by continuous feedback. *Psychophysiology*, March 1969, 5, 564. (IV-12)

Relates subvocalization in 62 adult and 30 high school subjects to silent reading rate and comprehension.

146. HARDYCK, CURTIS D., & PETRINOVICH, LEWIS F. Subvocal speech and comprehension level as a function of the difficulty level of reading material. *Journal of Verbal Learning and Verbal Behavior*, December 1970, 9, 647-652. (IV-11)

Studies 18 college freshmen from remedial classes in an attempt to relate muscle-action recording to the difficulty level of reading material and understanding.

147. HARE, BETTY A.; HAMMILL, DONALD D.; & BARTEL, NETTIE R. Construct validity of selected subtests of the ITPA. *Exceptional Children*, September 1973, 40, 13-19. (IV-8)

Factor analyses data collected on 126 third graders on 16 parallel subtests and tasks in order to determine factor loading on 6 subtests of the ITPA.

148. HARGIS, CHARLES H.; EVANS, CAROLE C.; & MASTERS, CAROLYN. A criticism of the direct discourse form in primary level basal readers. *The Volta Review*, December 1973, 75, 557-563. (VI)

Uses 25 deaf children, ranging in age from 8 to 13, in assessing the effects of the conversation format used in basal readers with hearing impaired children.

149. HARLESS, JAMES D. The impact of adventure fiction on readers: the nice-guy type. *Journalism Quarterly*, Summer 1972, 49, 306-315. (III-15)

Explores cathexis types (involvement in) and attitude change for 41 subjects who read a "nice guy" novel.

150. HARRIS, ALBERT J. The preparation of classroom teachers to teach reading. *Journal of Research and Development in Education*, Fall 1973, 7, 11-18. (I)

Reviews studies of teacher training in reading instruction, charts trends in preservice and inservice education, and discusses the evaluation of qualifications of teachers of reading.

151. HARTMAN, ROBERT K. Differential diagnosis: assets and liabilities. *The Journal of Special Education*, Winter 1974, 7, 393-397. (I)

Reviews a number of studies that have attempted to differentiate subgroups of retarded readers and discusses these in light of current diagnostic procedures and compensatory programs.

152. HASKINS, JACK B. 'Cloud with a silver lining' approach to violence news. *Journalism Quarterly*, Autumn 1973, 50, 549-552. (III-6)

Devises a treatment to evaluate news of violence that would have higher reader interest than straight-news approach. Uses responses from a telephone household sample of 143 with a verification sample of 272.

153. HATCH, EVELYN. Research on reading a second language. *Journal of Reading Behavior*, April 1974, 6, 53-61. (I)

Reviews selected research on reading a second language under these headings: in which language is the initial reading, what complicates reading a second language, and what have we learned for the classroom.

154. HEIMAN, JULIA R.; FISCHER, MARK J.; ROSS, ALAN O. A supplementary behavioral program to improve deficient reading performance. *Journal of Abnormal Child Psychology*, October/December 1973, *1*, 390-399. (V-10)

Describes a behavioral approach to modifying attentional behaviors and improving recognition of letters and words in 14 retarded readers aged 7 to 12.

155. HEITZMAN, ANDREW J. Effects of a token reinforcement system on the reading behavior of black migrant primary school pupils. *The Journal of Educational Research*, March 1974, 67, 299-302. (V-5)

Tests the effects of a token reinforcement system on the reading behavior of 70 black migrant and 25 white primary pupils.

156. HELM, PHOEBE K. A critical review of the research in teaching vocabulary to secondary students. In Gene Kerstiens (Ed.) Technological alternatives in learning. *Proceedings of the Sixth Annual Conference of the Western College Reading Association*, 1973. Pp. 73-78. (I)

Reviews studies related to the teaching of vocabulary (listening, reading, writing and speaking) to students in the secondary school.

157. HENDERSON, LESLIE. Effects of letter-names on visual search. *Cognitive Psychology*, July 1973, 5, 90-96. (IV-18)

Measures the ability of 5 undergraduate and graduate females to identify letters under mixed case conditions, and the effect letter names have on that ability.

158. HENDERSON, NORMAN B.; FAY, WARREN H.; LINDEMANN, SALLY J.; & CLARKSON, QUENTIN D. Will the IQ test ban decrease the effectiveness of reading prediction? *Journal of Educational Psychology*, December 1973, 65, 345-355. (IV-3)

Examines the efficiency of various IQ, achievement, and other tests in predicting reading growth of 709 seven year olds, with particular attention to the efficiency of the tests in regard to sex and ethnic groups.

159. HILL, CLARA E.; HUBBS, MARY ANN; & VERBLE, CHARLA. A developmental analysis of the sex-role identification of school-related objects. *The Journal of Educational Research*, January 1974, 67, 205-206. (IV-2)

Measures the differences in 48 kindergarten, second and fourth grade children's attitudes towards school-related objects.

160. HILLERICH, ROBERT L. Word lists—getting it all together. *The Reading Teacher*, January 1974, 27, 353-360. (IV-9)

Analyzes 14 vocabulary studies for variations among the word lists and to present an up to date basic vocabulary.

161. HIMELSTEIN, HOWARD C., & GREENBERG, GARY. The effect of increasing reading rate on comprehension. *The Journal of Psychology*, March 1974, 86, 251-259. (IV-12)

Explores the relationship between reading rate increase and comprehension scores. Subjects were 10 experimental and 10 control college students matched for rate and comprehension.

162. HIRAGA, MASUMI. Senior high school students' reading interests and attitudes. *The Science of Reading*, September 1973, 17, 35-47. (IV-17)

Presents findings of a questionnaire administered over a 5-year period to 3,250 students at a boarding senior high school in Tokyo. Information on reading interests and habits were collected.

163. HOLBERT, NEIL. Key articles in advertising research. *Journal of Advertising Research*, October 1972, 12, 5-13. (I)

Discusses 40 articles from 4 journals written since 1960 on advertising research in an attempt to note useful contributions in the area.

164. HORNER, PETER. The teaching of reading in England up to 1870. *Reading*, December 1973, 7, 3-10. (III-7).

Presents a brief history of the teaching of reading in England until the late 19th century.

165. HOSFORD, PRENTISS. Explicitness of clue and identifying word meanings from context. *Journal of Research and Development in Education*, 1973, 6, monograph, 78-83. (VI)

Investigates the influence of specific teaching strategies on word meaning using 15 retarded subjects (CA 10 to 16.9, MA 8 to 11), 15 normal subjects equated on MA with the retardates, and 15 normal subjects equated on CA with retardates.

166. HOSKINS, ROBERT L. A readability study of AP and UPI wire copy. *Journalism Quarterly*, Summer 1973, 50, 360-363. (III-3)

Determines the average readability level of current AP and UPI wire copy and whether the average readability levels of the 2 news services differ. Two Texas papers were chosen for the study using 5 stories from both AP and UPI state and national news, and 8 stories from a national assortment of each news service.

167. HOSKISSON, KENNETH; SHERMAN, THOMAS M.; SMITH, LINDA L. Assisted reading and parent involvement. *The Reading Teacher*, April 1974, 27, 710-714. (V-5)

Tests the use of an assisted reading technique by a parent with 2 pupils, one boy age 9 and one girl age 7, who were reluctant readers with low achievement in grade 2.

168. HUDDLESTON, RONALD L. Dual hearing screening: a method for identifying children with probable phonic reading problems. *Language, Speech and Hearing Services in the Schools*, January 1974, 5, 44-49. (IV-7)

Identifies from a total sample of 73, those first graders who were low in auditory discrimination and compares them with controls on a reading test given at the end of the year.

169. HUNGERFORD, STEVEN E., & LEMERT, JAMES B. Covering the environment: a new 'Afghanistanism'? *Journalism Quarterly*, Autumn 1973, 50, 475-481, 508. (III-2)

Analyzes 20 Oregon daily newspapers during one week in 1970 for all the news and editorial content dealing with the environment.

170. HURLEY, OLIVER. The influence of contiguity of instances on the learning of homonyms by retarded and normal pupils. *Journal of Research and Development in Education*, 1973, 6, monograph, 119-124. (VI)

Investigates the effects of the closeness of stimuli for recognition of the meanings of homonyms out of context with 3 groups of 30 subjects each (retardates, CA 10 to 16.9, MA 8 to 11; CA equated normal and MA equated normal).

171. HURLEY, OLIVER. Learning concepts: positive to negative instances. *Journal of Research and Development in Education*, 1973, 6, monograph, 131-137. (VI)

Examines the results of 2 ratios of positive to negative instances on attainment of recognizing concept labels out of context with 30 retardates (CA 10-16.9, MA 8-11), 30 MA equated normals and 30 CA equated normals.

172. HUUS, HELEN. The effects of reading on children and youth. In Robert Karlin (Ed.) Reading for all. *Proceedings of the Fourth IRA World Congress on Reading*, 1972. Pp. 132-141. (I)

Reviews studies with regard to their methodology used, and problems encountered in 5 categories in which reading affects the child.

173. ILIKA, JOSEPH, & SULLIVAN, EMILIE. An investigation of collateral reading flexibility among teacher trainees. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 204-210. (II)

Evaluates 25 teacher trainees' reading flexibility to see whether there is need for incorporating a reading flexibility module in undergraduate reading methods courses.

174. INTERRACIAL BOOKS FOR CHILDREN. People's Republic of China: educating the masses with picture-story books. Author, 1974, 5(*1*,2), 7-10. (III-2)

Surveys 80 picture-story books published in China since the Cultural Revolution (1970).

175. JAMISON, DEAN; SUPPES, PATRICK; & WELLS, STUART. The effectiveness of alternative instructional media: a survey. *Review of Educational Research*, Winter 1974, 44, 1-67. (I)

Presents an overview of the research on the effectiveness of 5 methods of instructional media. Includes some reading studies used in the various media.

176. JANI, SUBHASH N. Dyslexia—a summary of representative views. *Journal of the Association for the Study of Perception*, Fall 1973, 8, 30-37. (I)

Summarizes 11 views on dyslexia.

177. JANSEN, DAVID G. WISC and reading achievement of children referred back to the regular classroom or to a special education class after psychological evaluation. *Perceptual and Motor Skills*, September 1973, 37, 203-204. (VI)

Compares the performance of 3 groups of elementary school children who had been given a psychological examination and were sent to 2 special classrooms or returned to the regular class. A total of 165 subjects were included.

178. JASON, MARTIN H., & DUBNOW, BEATRICE. The relationship between self-perceptions of reading abilities and reading achievement. In Walter H. MacGinitie (Ed.) *Assessment problems in reading*. Newark: IRA, 1973. Pp. 96-101. (V-11)

Reports the development of a 20-item, self-report scale involving reading. Also presents correlational data between scores on the scale and reading achievement scores for 231 grade 5 students.

179. JENSEN, JULIE M. A comparative investigation of the casual and careful oral language styles of average and superior fifth grade boys and girls. *Research in the Teaching of English*, Winter 1973, 7, 338-350. (IV-8)

Investigates the differences between casual and formal language of average and superior fifth graders using 80 subjects.

180. JOHNS, JERRY L. Should the Dolch list be retired, replaced, or revised? *The Elementary School Journal*, March 1974, 74, 375-380. (V-9)

Compares the original Dolch list with 4 recently published word lists.

181. JOHNS, JERRY L., & HIGDON, JEAN E. Another look at the Dolch List. *Journal of Reading Behavior*, Spring 1973, 5, 140-144. (V-9)

Investigates whether the Dolch list was more common to the oral vocabularies of beginning readers (ages 5-7) than the Corpus list. The subjects were 30 children in each age group of 5, 6, and 7 year old children, equally divided between boys and girls.

182. JOHNSON, DALE D. Sex differences in reading across cultures. *Reading Research Quarterly*, 1973-1974, 9, 67-86. (IV-2)

Investigates the sex differences in reading achievement in Canada, England, Nigeria, and the United States. Over 1,000 subjects at grades 2, 4, and 6 were included in the study.

183. JOHNSON, DALE D. The teaching of reading. *The Journal of Educational Research*, May/June 1974, 67, 412-420. (I)

Identifies various areas within the teaching of reading and reviews selected research appearing in those areas over 4 decades.

184. JOHNSON, RONALD E. Learners' predictions of the recallability of prose. *Journal of Reading Behavior*, April 1974, 6, 41-52. (IV-10)

Tests the ability of 836 college students to predict segments of prose likely to be remembered. Determines the attributes of the prose associated with raters' predictions.

185. JOHNSON, SIMON S. How students feel about literature. *American Education*, April 1974, *10*, 6-10. (IV-17)

Reports findings of a national literature assessment survey done at ages 9, 13, 17, and young adults (26-35). Data were analyzed for region, sex, color, parental education, and type of community.

186. JOHNSTONE, MAREA A. Public library users: some characteristics and perceptions. *The Australian Library Journal*, October 1973, 22, 358-363. (III-10)

Ascertains via questionnaires the characteristics of 395 library users in terms of age, attitudes toward libraries, and patterns of usage.

187. JONGSMA, EUGENE A. Research on performance-based teacher education: problems and promises. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 200-209. (I)

Discusses and examines research related to performance-based teacher education programs.

188. KARLSEN, BJORN, & BLOCKER, MARGARET. Black children and final consonant blends. *The Reading Teacher*, February 1974, 27, 462-463. (IV-16)

Attempts to determine to what extent 68 black boys and girls can perceive final consonant blends auditorally.

189. KASSARJIAN, WALTRAUD M. Blacks as communicators and interpreters of mass communication. *Journalism Quarterly*, Summer 1973, 50, 285-291, 305. (I)

Reviews the studies of blacks as communicators and the part they play in the mass media boom.

190. KAUFMAN, MAURICE. A study of the effect of the use of *Words in Color* for intensive remedial instruction. *The New England Reading Association Journal*, Spring 1972, 7, 17-24. (V-10)

Investigates the effectiveness of a beginning reading program with 13 fourth through sixth graders as a remedial program.

191. KAY, PATRICIA M.; TITTLE, CAROL J.; & WEINER, MAX. Selecting tests to predict the need for remediation in a university

open admissions population. *Measurement and Evaluation in Guidance*, October 1971, 4, 154-159. (IV-14)

Describes a test selecting procedure utilized to identify from a total sample of 461, those high school students needing remedial work in reading and math and presents data from 6 reading and 5 math tests for this sample.

192. KEETZ, MARY A. The effect of incorporating reading and study skills instruction into a college academic course. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 270-276. (V-8)

Evaluates the effectiveness of incorporating reading and study skills instruction into a college academic course with an 18 student experimental group and a control group of 31 students.

193. KELLEHER, DENNIS K. A pilot study to determine the effect of the bioptic telescope on young low vision patients' attitude and achievement. *American Journal of Optometry and Physiological Optics*, March 1974, *51*, 198-205. (VI)

Determines the effect of bioptic telescopic spectacles on attitude and achievement in reading, spelling, and arithmetic for 5 low vision subjects.

194. KELLER, JAMES F.; CROAKE, JAMES W.; & RIESEMAN, CAROLYN. Relationships among handedness, intelligence, sex, and reading achievement of school age children. *Perceptual and Motor Skills*, September 1973, 37, 159-162. (IV-13)

Correlates dominance, IQ, sex, reading achievement, and grade level in 277 children, grades 3-12, in an effort to deal with the interaction of all 5 variables.

195. KELLEY, WILLIAM G. Heywood Broun before and after Sacco-Vanzetti. *Journalism Quarterly*, Autumn 1973, 50, 567-569. (III-2)

Considers the degree of liberality in Heywood Broun's writings before and after the Sacco-Vanzetti case.

196. KENNEDY, KEITH. Reading level determination for selected tests. *The Science Teacher*, March 1974, *41*, 26-27. (V-9)

Utilizes the Fry readability formula in calculating difficulty levels of several junior high and high school science texts.

197. KEOGH, BARBARA K. Optometric vision training programs for children with learning disabilities: review of issues and re-

search. *Journal of Learning Disabilities*, April 1974, 7, 219-231. (I)

Summarizes research related to the effects of vision training programs used to enhance readiness skills and for remediation of learning problems.

198. KINCAID, PETER J., & DELIONBACH, LEROY J. Validation of the automated readability index: a follow-up. *Human Factors*, February 1973, *15*, 17-20. (IV-18)

Examines the performance of 110 enlisted men of varying ages and educational background on technical passages and related criterion tests at different degrees of difficulty as measured by a readability formula.

199. KING, DAVID J. Presentation time and method of reading in the learning of connected discourse. *The Journal of General Psychology*, April 1973, 88, 283-289. (IV-9)

Presents short prose passages orally to 90 undergraduates under 3 conditions (paced, normal, linguistic breaks, and atypical linguistic breaks) and tests via written recall in order to determine the effect of mode of presentation on learning.

200. KINGSTON, ALBERT J. Areas of concern about adult reading. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 53-56. (I)

Reviews and discusses 2 studies on adult reading and the need for more research related to the topic.

201. KINTSCH, WALTER, & KEENAN, JANICE. Reading rate and retention as a function of the number of propositions in the base structure of sentences. *Cognitive Psychology*, November 1973, 5, 257-274. (IV-13)

Correlates reading time and recall in 73 undergraduates with materials that varied in terms of the number of propositions, defined as a relational term and one or more arguments.

202. KIRALY, JOHN, & FURLONG, ALEXANDRA. Teaching words to kindergarten children with picture, configuration, and initial sound cues in a prompting procedure. *The Journal of Educational Research*, March 1974, 67, 295-298. (V-3)

Compares the effectiveness of 4 different presentation cues used in teaching young children to learn new words. Subjects were 80 kindergarten children.

203. KLAPP, STUART T.; ANDERSON, WALLACE G.; & BERRIAN, RAYMOND W. Implicit speech in reading, reconsidered. *Journal*

of Experimental Psychology, October 1973, *100*, 364-374. (IV-9)

Measures pronunciation latencies of college students under various conditions in an attempt to assess the role of inner speech as a mediator for word recognition.

204. KLEIN, HELEN ALTMAN, & KLEIN, GARY A. Studying the use of context for word identification decisions. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 86-91. (IV-9)

Uses 64 college students in studying the relationship context has with word identification decisions.

205. KLEIN, HELEN ALTMAN; KLEIN, GARY A.; & BERTINO, MARY. Utilization of context for word identification decisions in children. *Journal of Experimental Child Psychology*, February 1974, *17*, 79-86. (IV-9)

Assesses in 2 experiments the extent to which 80 fourth and sixth graders use contextual information in word recognition strategies.

206. KLEMT, LAURA L., & ANDERSON, RICHARD C. Effects of sentence elaboration and frequency of usage on noun-pair learning. *Journal of Educational Psychology*, August 1973, 65, 25-27. (IV-5)

Presents 40 adult subjects with sentences containing noun pairs of low and high frequency in order to determine if one condition improved learning.

207. KNAFLE, JUNE D. Word perception: cues aiding structure detection. *Reading Research Quarterly*, Summer 1973, 8, 502-523. (IV-9)

Reports the results of a study to determine whether color, underlining, and word shape cues help 636 K-3 pupils recognize structure in words.

208. KNAPCZYK, DENNIS R., & LIVINGSTON, GARY. The effects of prompting question-asking upon on-task behavior and reading comprehension. *Journal of Applied Behavior Analysis*, Spring 1974, 7, 115-121. (VI)

Reports results of a study involving 2 upper grade EMR children in which subjects were trained to ask more questions, then correlates this change in behavior with attentional factors and reading comprehension.

209. KRASHEN, STEPHEN D. Lateralization, language learning, and the critical period: some new evidence. *Language Learning*, June 1973, 23, 63-74. (I)

Reviews data that indicate lateralization is complete earlier than puberty and re-examines cerebral plasticity and its relation to second language learning and lateralization.

210. KRAUSEN, R. The relationship of certain 'pre-reading' skills to general ability & social class in nursery children. *Educational Research*, November 1972, *15*, 72-79. (IV-6)

Examines the extent to which skills of visual perception are related to language, general ability, and occupation of parents in 160 preschool children, ages 3 to 5.

211. KRETSCHMER, JOSEPH C. Measuring reading comprehension (abstract). *Reading Research Quarterly*, 1973/1974, *9*(2), 224-226. (IV-10)

Administers a test based on Piaget's concrete operational level to 60 third graders and 60 sixth graders to examine differences among each group.

212. KRONUS, CAROL I. Patterns of adult library use: a regression and path analysis. *Adult Education*, Winter 1973, 23, 115-131. (III-10)

Uses 1,019 adult subjects to assess factors influencing adult library use.

213. KULM, GERALD. Sources of reading difficulty in elementary algebra textbooks. *The Mathematics Teacher*, November 1973, 66, 649-652. (V-9)

Discusses sources of reading difficulty in math textbooks and attempts to analyze passages from these books in terms of type of written material and structural characteristics, and how these relate to predictions of readability.

214. KWOLEK, WILLIAM F. A readability survey of technical and popular literature. *Journalism Quarterly*, Summer 1973, 50, 255-264. (IV-18)

Surveys the readability for 18 categories of literature according to the sentence length, percentage of hard words, and the Fog Index.

215. LABUDDE, CONSTANCE, & SMITH, RICHARD J. Librarians look at remedial reading. *The Reading Teacher*, December 1973, 27, 263-269. (V-1)

Presents findings of a 9-item questionnaire directed to finding out the role of the librarian in remedial instruction. Findings are based on 53 returns.

216. LAHEY, BENJAMIN B.; WELLER, DENNIS R.; & BROWN, WILLIAM R. The behavior analysis approach to reading: phonics discrimination. *Journal of Reading Behavior*, Summer 1973, 5, 200-211. (V-10)

Presents an approach to teaching basic reading behaviors with 4 U.S. Navy recruits.

217. LANE, SAM H.; EVANS, SELBY H.; & LANE, CAROL A. A schema theory approach to the reading process. *The Psychological Record*, Winter 1974, 24, 75-80. (IV-5)

Compares the performance of 16 average and poor college readers on a task involving the identification and categorization of word-like graphic patterns.

218. LANGER, GARY; WARK, DAVID; & JOHNSON, SUE. Test-wiseness in objective tests. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 280-287. (V-11)

Presents findings of 2 studies: the first study determines if test-wiseness does exist and if it could be taught using 80 college students; and the second study assesses the best method for teaching test-wiseness. Subjects for both studies were college students.

219. LARGEN, ROBERT G. Self-embedded sentences and the syllogistic form: an investigation of their interaction. *The Journal of General Psychology*, January 1974, *90*, 17-23. (IV-8)

Measures the ability of 141 undergraduate college students to understand a self-embedded sentence with 2 embeddings in relation to syllogistic reasoning ability.

220. LARSEN, JANET J.; TILLMAN, CHESTER E.; ROSS, JOHN J.; SATZ, PAUL; CASSIN, BARBARA; & WOLKING, WILLIAM D. Factors in reading achievement: an interdisciplinary approach. *Journal of Learning Disabilities*, December 1973, 6, 636-644. (IV-14)

Describes 100 learning disabled clinic referrals, ages 6 to 16, and the evaluation procedures used with them in order to isolate factors that distinguished among various subgroups.

221. LAWRENCE, DENIS. Counselling of retarded readers by non-professionals. *Educational Research*, November 1972, *15*, 48-51. (IV-14)

Investigates a program of paraprofessional counselling with 24 poor readers and 24 controls, ages 7 to 9, and its effect on reading achievement.

222. LEFTON, LESTER A.; SPRAGINS, ANNE B.; & BYRNES, JOHN. English orthography: relation to reading experience. *Bulletin*

of the Psychonomic Society, November 1973, 2, 281-282. (IV-8)

Examines 30 first, third, and fifth graders for their ability to recognize missing letters in pseudowords and the effect of letter position and order of approximation.

223. LEVIN, JOEL R. Inducing comprehension in poor readers: a test of a recent model. *Journal of Educational Psychology*, August 1973, 65, 19-24. (IV-14)

Tests 54 fourth graders' comprehension ability under conditions of a supplied visual and imagery organizational strategies and no strategy.

224. LEVIN, JOEL R., & DIVINE-HAWKINS, PATRICIA. Visual imagery as a prose-learning process. *Journal of Reading Behavior*, April 1974, 6, 23-30. (IV-6)

Presents 2 experiments evaluating the effect of visual imagery on recall of a passage under listening and reading conditions using 48 fourth graders and 112 fifth graders as subjects.

225. LEVINSON, PHILIP J., & KUNZE, LUVERN H. Verbal analogies in the ITPA. *Psychology in the Schools*, September 1973, *10*, 354-359. (IV-8)

Examines the extent to which the Auditory Association subtest of the ITPA measures the ability to see relationships between words and to apply them to other words in 36 children, ages 5 to 7.

226. LEVY, BEATRICE K. Is the oral language of inner city children adequate for beginning reading instruction? *Research in the Teaching of English*, Spring 1973, 7, 51-60. (IV-16)

Interviews 20 black first graders and attempts to assess the quality of their oral language in terms of vocabulary and linguistic complexity.

227. LEVY, SHELDON G. Distance of politically violent events from newspaper source over 150 years. *Journalism Quarterly*, Spring 1974, *51*, 28-32. (III-12)

Examines several factors relating to the distance of events reported in 2 U.S. newspaper sources from 1819 to 1968. Politically violent events during that time period were selected for sampling.

228. LIBERMAN, ISABELLE Y.; SHANKWEILER, DONALD; ORLANDO, CHARLES; HARRIS, KATHERINE S.; & BERTI, FREDERICKA BELL. Letter confusions and reversals of sequence in the beginning reader: implications for Orton's theory of developmental dyslexia. *Cortex*, June 1971, 7, 127-142. (IV-14)

Examines specific reversal errors made by 18 second graders judged to be in the lower third of the total sample of 54 in reading,

then correlates these errors with each other and additional kinds of errors.

229. LICHTMAN, MARILYN. Problems and remedies: viewpoint from the field. *The Reading Teacher*, October 1973, 27, 29-32. (II)

Interviews 31 professional educators to obtain information on problems of teaching reading and proposed solutions. Questions covered 8 different areas of reading.

230. LITTLE, DONALD. Form of preview in identifying supporting ideas and details with retarded and normal students. *Journal of Research and Development in Education*, 1973, 6, monograph, 150-154. (VI)

Determines the effect of form of preview information on the identification of supporting ideas in longer selections among 30 retardates (CA 10 to 16.9, MA 8 to 11), 30 MA equated normals, and 30 CA equated normals.

231. LOCKE, JOHN L. Phonemic processing in silent reading. *Perceptual and Motor Skills*, June 1971, 32, 905-906. (IV-13)

Attempts to measure subvocalization in 6 adult subjects while they read various phonemically weighted passages.

232. LONG, BARBRA H., & HENDERSON, EDMUND H. Certain determinants of academic expectancies among Southern and non-Southern teachers. *American Educational Research Journal*, Spring 1974, *11*, 137-147. (II)

Presents 120 teachers with brief descriptions of 12 hypothetical children and asks them to rate the children on the probability of learning to read in grade one.

233. LOVITT, THOMAS C., & HURLBURT, MARY. Using behavior-analysis techniques to assess the relationship between phonics instruction and oral reading. *The Journal of Special Education*, Spring 1974, 8, 57-72. (V-6)

Examines the effects of 2 types of phonics instruction on a range of oral reading behaviors in 5 nine and ten year old boys.

234. LOWERRE, GEORGE F., & SCANDURA, JOSEPH M. Conceptually based development and evaluation of individualized materials for critical reading based on logical inference. *Reading Research Quarterly*, 1973/1974, 9(2), 186-205. (V-9)

Develops and evaluates prototype diagnostic testing and teaching materials involving 2 logical inference rules for use in the third grade and up.

235. LOWREY, LLOYD W. JR. Science and public affairs. In David M. Rubin & David P. Sachs (Eds.) *Mass media and the envi-*

ronment: water resources, land use and atomic energy in California. New York: Praeger, 1973. Pp. 3-35. (III-12)

Reviews several case studies pointing up the difficulties and problems in scientific and environmental reporting.

236. LUKENBILL, W. BERNARD. Fathers in adolescent novels. *Library Journal*, February 1974, *99*, 536-540. (III-2)

Analyzes 50 novels from the *Junior High School Library Catalog* with settings in 20th century U.S. in terms of descriptive data, interpersonal relationships, and behavior patterns of fathers in these novels.

237. LUTZ, WILLIAM W. *The News of Detroit: how a newspaper and a city grew together.* Boston, Massachusetts: Little, Brown, 1973. (III-11)

Traces the growth and development of the *Detroit News* from its inception in 1873 to the present.

238. LYLE, J. G., & GOYEN, JUDITH D. Performance of retarded and normal readers on a visual-auditory learning task with and without reinforcers. *Perceptual and Motor Skills*, February 1974, 38, 199-204. (IV-5)

Compares the performance of 38 poor and 38 average readers on a grapheme-phoneme-like learning task under conditions of non-reinforcement and reinforcement.

239. LYMAN, HELEN HUGENOR. *Library materials in service to the adult new reader.* Chicago: American Library Association, 1973. (III-10)

Collects and analyzes data over a 5-year period through 4 studies designed to survey the characteristics and reading behavior of the adult new reader and the reading materials available for this group.

240. LYNN, JERRY R. Perception of public service advertising: source, message and receiver effects. *Journalism Quarterly*, Winter 1973, 50, 673-679, 689. (III-1)

Explores perception (source valence and message comprehension) of Advertising Council public service advertising by examining selected source, message and receiver effects of 75 subjects.

241. MAJTELES, DEBBIE; SELLERS, LEONARD; & BROWN, CHARLENE. The environmental information explosion. In David M. Rubin & David P. Sachs (Eds.) *Mass media and the environment: water resources, land use and atomic energy in California.* New York: Praeger, 1973. Pp. 54-107. (III-2)

Performs a content analysis of 9 mass circulation magazines, wire services, and one newspaper in an investigation of the quantity of environmental coverage in the 1960's and early 1970's.

242. MALMQUIST, EVE. Perspectives on reading research. In Robert Karlin (Ed.) Reading for all. *Proceedings of the Fourth IRA World Congress on Reading*, 1972. Pp. 142-155. (I)

Summarizes significant results of a number of reading research studies in order to emphasize the importance of reliable and valid studies.

243. MARKS, CAROLYN B.; DOCTOROW, MARLEEN J.; & WITTROCK, M. C. Word frequency and reading comprehension. *The Journal of Educational Research*, February 1974, 67, 259-262. (V-9)

Studies the effect of 15 per cent changes in word frequency upon story comprehension in elementary school materials, using 222 sixth graders (10-12 years).

244. MARTIN, CLESSEN J. Comprehension of telegraphic prose II: effect of a grammatical deletion scheme. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 101-111. (VI)

Investigates the effects on comprehension by word deletion from 4 grammatical categories. Uses 152 deaf and hard of hearing males and females as subjects.

245. MASON, GEORGE; MCDANIEL, HARRY; & CALLAWAY, BYRON. Relating reading and spelling: a comparison of methods. *The Elementary School Journal*, March 1974, 74, 381-386. (V-5)

Investigates the impact of several approaches to teaching spelling to first graders on various aspects of their language arts development. Uses 286 boys and 312 girls as subjects.

246. MASON, GEORGE E., & WOODCOCK, CARROLL. First graders' performance on a visual memory for words task. *Elementary English*, September 1973, 50, 865-870. (IV-6)

Determines the methods used by 2 first grade classes to match word forms held in short-term memory.

247. MATHENY, ADAM P., JR., & BROWN, ANNE DOLAN. A twin study of genetic influences in reading achievement. *Journal of Learning Disabilities*, February 1974, 7, 99-102. (IV-1)

Examines reading achievement in a study of 70 pairs of monozygotic versus dizygotic twins, ages 9 to 12, to determine the probable influence of heredity.

248. MAY, WILLIAM. Amount of isolation of context clue in connected discourse. *Journal of Research and Development in Education*, 1973, 6, monograph, 89-94. (VI)

Examines the proficiency of a group of 30 retarded subjects matched with 2 groups of intellectually normal subjects on the basis of MA and on the basis of CA with regard to the ability to identify new words in context. Presentation of clues under 2 isolation conditions was made.

249. MAY, WILLIAM. The role of relevant and irrelevant dimensions in concept attainment among retardates and normals. *Journal of Research and Development in Education*, 1973, 6, monograph, 144-149. (VI)

Presents the relative influence of the ratio of relevant to irrelevant dimensions on the conceptual behavior of 30 retarded subjects (CA 10 to 16.9, MA 8 to 11), 30 MA equated normals, and 30 CA equated normals.

250. MAYES, BEA. The reading teacher and values. *Contemporary Education*, Winter 1974, 45, 126-131. (II)

Studies attitudes and beliefs of elementary teachers using radically different types of instructional materials.

251. MAZURKIEWICZ, ALBERT J. i.t.a. revisited. *Reading World*, March 1974, *13*, 156-160. (I)

Reviews advantages and disadvantages of the initial teaching alphabet for teaching beginning reading.

252. MCCLELLAN, DORINDA ANN, & MCCLELLAN, LESLIE. Reading and study skills which predict success in freshman biology. In Gene Kerstiens (Ed.) Technological alternatives in learning. *Proceedings of the Sixth Annual Conference of the Western College Reading Association*, 1973. Pp. 115-120. (IV-9)

Tests 68 freshman biology students to determine the relationship between various reading skills and success in biology.

253. MCCLENGHAN, JACK SEAN. Effects of endorsements in Texas local elections. *Journalism Quarterly*, Summer 1973, 50, 363-366. (III-16)

Assesses the influence of newspaper editorial endorsements on voting behavior in local elections in 7 Texas cities using 4 major Texas papers and 10 state newspapers.

254. McCollum, Paul S., & Anderson, Robert P. Group counseling with reading disabled children. *Journal of Counseling Psychology*, March 1974, *21*, 150-155. (V-10)

Examines the effects of group counseling procedures on the subsequent reading achievement of 48 ten to fourteen year olds defined as neurologically impaired.

255. McConkie, George W., & Rayner, Keith. Investigation of reading strategies: I. manipulating strategies through payoff conditions. *Journal of Reading Behavior*, April 1974, 6, 9-18. (IV-12)

Investigates the effects of 7 conditions of task manipulation and payoff on increase in reading rate and test performance with 10 college students in each group.

256. McConkie, George W., & Rayner, Keith. An on-line computer technique for studying reading: identifying the perceptual span. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 119-130. (IV-6)

Describes 2 experiments using an on-line computer technique to study information acquired from high school students during the eye fixation in reading.

257. McConkie, George W.; Rayner, Keith; & Wilson, Steven J. Experimental manipulation of reading strategies. *Journal of Educational Psychology*, August 1973, 65, 1-8. (IV-12)

Utilizes 5 different types of questions following experimental passages in order to analyze the reading speed and comprehension levels of 185 college subjects.

258. McDonald, Thomas F., & Moorman, Gary B. Criterion referenced testing for functional literacy. *Journal of Reading*, February 1974, *17*, 363-366. (V-11)

Discusses and tests the use of the Minimal Reading Proficiency Assessment for analyzing a student's need for reading. A total of 12,170 freshmen and sophomores in high school were given the test.

259. McFeely, Donald C. Syllabication usefulness in a basal and social studies vocabulary. *The Reading Teacher*, May 1974, 27, 809-814. (V-9)

Examines the percentages of utility of 8 syllabication generalizations in 2 and 3 syllable words taken from 2 basal readers and 2 social studies texts. A total of 7,660 words were used.

260. McLAUGHLIN, HARRY G. Temptations of the Flesch. *Instructional Science*, January 1974, 2, 367-384. (III-3)

Examines the reading habits of British adults, analyzes the readability and linguistic difficulty of 49 British newspapers and magazines, and then generates hypotheses concerning the accuracy of readability measures and the relationship between difficulty and subsequent comprehension.

261. McMULLEN, DAVID W. Minimal contrast, spelling patterns, and initial reading. *Journal of Reading Behavior*, Fall 1972/1973, 5, 252-258. (IV-5)

Studies the effect of minimal contrast among word forms found in initial reading instruction for 70 subjects: 39 in grade one and 31 in grade 2.

262. McNINCH, GEORGE. Graphic constraints on children's ability to read sight words. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 137-143. (IV-18)

Investigates the influences that mixing graphic styles within words has on word reading ability. Uses 34 beginning second graders as subjects.

263. MEADOW, ROBERT G. Cross-media comparison of coverage of the 1972 presidential campaign. *Journalism Quarterly*, Autumn 1973, 50, 482-488. (III-1)

Presents comparative data of television and newspaper coverage of the 1972 presidential election.

264. MERRITT, JOHN E. Recent developments in Great Britain. *Journal of Reading*, February 1974, *17*, 367-372. (V-1)

Discusses the findings of 2 research reports published on the special reading difficulties and the standards of reading in Great Britain.

265. MEYER, PHILIP. Elitism and newspaper believability. *Journalism Quarterly*, Spring 1973, 50, 31-36. (III-12)

Samples 931 adults in the Detroit area in terms of how local newspapers treat various social, ethnic, and political groups and how these perceived biases relate to the total credibility of the newspaper.

266. MICKELSON, NORMA I. Associative verbal encoding (a/v/e): a measure of language performance and its relationship to reading achievement (abstract). *Reading Research Quarterly*, 1973/1974, 9(2), 227-231. (IV-8)

Investigates the relationship between results of instruction in number of verbal associations and reading achievement among 423 subjects.

267. MICKISH, VIRGINIA. Children's perceptions of written words boundaries. *Journal of Reading Behavior*, April 1974, 6, 19-22. (IV-13)

Examines 117 first grade pupils' perception of written word boundaries after completion of one year of reading instruction.

268. MILLER, ADAM. Learning miniature linguistic systems: effects of English language habits and concomitant meaning conditioning. *The Journal of General Psychology*, July 1973, 89, 15-25. (IV-8)

Exposes 40 undergraduates to 10 sentences under 5 experimental conditions which differed in terms of the degree to which the words were in a natural language order so as to assess the effects of language order on discovery of the rule by generation of new sentences.

269. MILLER, LEON K., & TURNER, SUZANNE. Development of hemifield differences in word recognition. *Journal of Educational Psychology*, October 1973, 65, 172-176. (IV-1)

Studies 15 subjects at each of 4 grade levels—second, fourth, sixth, and college—in terms of preceptual laterality development, then correlates these data with reading achievement, word recognition, and chronological age.

270. MILLER, WALLACE D. Classroom usefulness of intelligence tests in estimating reading potential. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 162-168. (IV-3)

Ascertains whether a vocabulary test or intelligence tests may be the most useful predictor of reading potential at third grade and if differences exist between IQ scores from different instruments.

271. MILLER, WILMA H. What about formal reading instruction in kindergarten? *Illinois Schools Journal*, Spring/Summer 1973, 53, 16-20. (I)

Reviews a number of studies concerning the effects of early reading instruction on later reading achievement and other variables.

272. MILLS, JAMES W.; JENSEN, PHILIP K.; & HERSHKOWITZ, MARTIN. A test of a linear programming model as an optimal solution to the problem of combining methods of reading instruction. *Instructional Science*, August 1973, 2, 215-233. (V-8)

Applies a mathematic model of reading in order to more efficiently utilize existing approaches to reading instruction with 200 university students.

273. MILLS, JUDSON. Avoidance of dissonant information. In Robert Holloway, Robert Mittlestaedt, & M. Venkatesau (Eds.) *Consumer Behavior: Contemporary Research in Action*. Boston: Houghton Mifflin, 1971. Pp. 404-410. (III-6)

Surveys college women in 2 experiments in an attempt to study some of the determinants of interest in information and tendencies in seeking out consonant and dissonant product information.

274. MORK, THEODORE A. The ability of children to select reading material at their own instructional reading level. In Walter H. MacGinitie (Ed.) *Assessment problems in reading*. Newark: IRA, 1973. Pp. 87-95. (V-5)

Asks 29 third graders and 31 fifth graders to select, from each of 3 different sets of materials, a piece that he could read by himself and compares the readability levels of the self-selected materials with each child's predetermined instructional reading level.

275. MUELLER, DORIS L. Teacher attitudes toward reading. *Journal of Reading*, December 1973, *17*, 202-205. (III-5)

Assesses teacher interest in reading through a questionnaire using 20 graduate students (experienced teachers) and 21 undergraduates (student teachers) of 2 reading methods classes.

276. MULLER, DOUGLAS. Phonic blending and transfer of letter training to word reading in children. *Journal of Reading Behavior*, Summer 1973, 5, 212-217. (IV-5)

Examines transfer of letter-naming to a word-naming task with various paradigms using first graders. In a second experiment sound blending was added.

277. NAIDOO, SANDHYA. Specific Dyslexia. New York: John Wiley, 1972. (IV-14)

Reports an investigation of 98 boys with specific reading and spelling difficulties (ages 8 years to 12 years) to determine the nature of causes.

278. NOBER, LINDA W. Auditory discrimination and classroom noise. *The Reading Teacher*, December 1973, 27, 288-291. (IV-7)

Investigates the auditory discrimination test scores of 39 children, under both quiet and noisy (average classroom) listening conditions. Children were classified as normal, speech defective, or reading retarded.

279. NORRIS, ELEANOR L. Perspective as a determinant of attitude formation and change. *Journalism Quarterly*, Spring 1973, 50, 11-16. (III-15)

Examines the effect of varying the scale against which an attitudinal stimulus is judged in order to determine attitude change in 228 high school pupils.

280. OAKLAND, THOMAS D.; WILLIAMS, FERN C.; & HARMER, WILLIAM R. A longitudinal study of auditory perception and reading instruction with first-grade Negro children. *The Journal of Special Education*, Summer 1973, 7, 141-154. (IV-7)

Describes a study in which black children with auditory-discriminatory disabilities were given 4 types of instruction to determine the best initial approach to reading.

281. OATES, WILLIAM R. Social and ethical content in science coverage by newsmagazines. *Journalism Quarterly*, Winter 1973, 50, 680-684. (III-2)

Analyzes the social and ethical content of 3 news magazines' coverage of a major medical science story.

282. OJALA, WILLIAM T., & MCNEILL, MARDA. A survey of adolescent interests in three schools. *Arizona English Bulletin*, April 1972, 14, 96-108. (IV-17)

Surveys the reading interests of junior high and senior high school students representing different socio-economic backgrounds, all in a local area.

283. O'KEEFE, GARRETT J., JR., & SPETNAGEL, H. T. Patterns of college undergraduates' use of selected news media. *Journalism Quarterly*, Autumn 1973, 50, 543-548. (III-1)

Surveys 815 undergraduate college students according to sex and age as to their use of mass media and compares results with adult population usage in other studies.

284. O'KEEFE, M. TIMOTHY. The Moscow news: Russia's first English language newspaper. *Journalism Quarterly*, Autumn 1973, 50, 463-468, 488. (III-11)

Presents a brief history of the first Soviet newspaper published in English.

285. OLIVER, LINDA. Women in aprons: the female stereotype in children's readers. *The Elementary School Journal*, February 1974, 74, 253-259. (III-2)

Examines several stories in a widely used reading series for role definition and how the roles of women are defined and circumscribed.

286. OLIVER, MARVIN E. The effect of high intensity practice on reading comprehension. *Reading Improvement*, Fall 1973, 10, 16-18. (V-6)

Compares 28 fourth through sixth graders who were allowed to spend 30 minutes a day for several weeks in silent reading to 20 similar controls in terms of increased reading comprehension.

287. OLLER, JOHN W., JR. Cloze tests of second language proficiency and what they measure. *Language Learning*, June 1973, 23, 105-118. (I)

Discusses the use of cloze tests as measures of various constructs, and the second language applications and limitations of the cloze.

288. OLLER, JOHN W., JR., & TULLIUS, JAMES R. Reading skills of non-native speakers of English. *IRAL*, February 1973, *11*, 69-80. (IV-13)

Studies 50 non-native English speaking college students in an attempt to correlate English proficiency with eye movements, first language, and the environment in which English was learned.

289. O'MALLEY, MICHAEL J. Stimulus dimension pre-training and set size in learning multiple discriminations with letters of the alphabet. *The Journal of Educational Research*, September 1973, 67, 41-45. (IV-5)

Investigates the interacting effects of dimensional pretraining and reduced set size on the acquisition of a multiple discrimination task involving alphabet letters.

290. OTTO, WAYNE; CHESTER, ROBERT; & MEHLING, MARY. Further validation of the Great Atlantic and Pacific sight word list. *The Journal of Educational Research*, April 1974, 67, 363-365. (V-9)

Compares the word frequency of 2 word lists in the vocabularies of 4 basal reading series from preprimer through grade 6.

291. PARADIS, EDWARD E. The appropriateness of visual discrimination exercises in reading readiness materials. *The Journal of Educational Research*, February 1974, 67, 276-278. (V-4)

Investigates the abilities of 119 preschoolers and 440 kindergarten students with reading readiness exercises.

292. PASEWARK, RICHARD A.; SCHERR, STEPHEN S.; & SAWYER, ROBERT N. Correlations of scores on the Vane Kindergarten, Wechsler Preschool and Primary Scale of Intelligence and Metropolitan Reading Readiness Tests. *Perceptual and Motor Skills*, April 1974, 38, 518. (V-11)

Correlates scores of 30 kindergartners on 2 general school readiness tests with scores on a reading readiness test.

293. PECKHAM, CATHERINE, S.; SHERIDAN, MARY; & BUTLER, NEVILLE R. School attainment of seven-year-old children with

hearing difficulties. *Developmental Medicine and Child Neurology*, October 1972, *14*, 592-602. (VI)

Identifies 219 British 7 year olds with a significant hearing loss and compares their reading and general school achievement with that of control children.

294. PEHRSSON, ROBERT S. V. The effects of teacher interference during the process of reading or how much of a helper is Mr. Gelper? *Journal of Reading*, May 1974, *17*, 617-621. (IV-11)

Investigates the effects on 3 measures of oral reading of correcting errors and attention to word accuracy as compared to reading to understand on 25 fifth graders and compares results to those of 5 subjects who read all selections to understand.

295. PENNOCK, CLIFFORD D. Using cloze to select appropriate level instructional materials. *Elementary English*, September 1973, *50*, 940-941. (I)

Reviews and discusses a small portion of the literature available on cloze tests and their appropriateness for evaluating a correct level of difficulty for the reader.

296. PEREZ, JANE Y. Effects of a summer parent workshop upon the performance of preschool children in three areas of school readiness. *The New England Reading Association Journal*, Spring 1972, *7*, 5-7. (V-4)

Tests whether parents can influence the performance of children in oral language, visual motor skills and body image, using 50 subjects whose parents attended a summer workshop and 50 nonattenders.

297. PERFETTI, CHARLES A., & GARSON, BLAINE. Forgetting linguistic information after reading. *Journal of Educational Psychology*, August 1973, *65*, 135-139. (IV-10)

Analyzes retention of semantic, surface grammatical and lexical information from prose material in 64 adult subjects under 4 different time conditions ranging from immediately after to one week later.

298. PETERSON, CANDIDA C. Self-selection of vocabulary reading instruction. *The Journal of Educational Research*, February 1974, *67*, 253-254. (IV-9)

Tests the success of the reader choosing the words he wants to learn as compared with those in a basal reader in the process of learning using 18 college students.

299. PETERSON, JOE; PARADIS, ED; & PETERS, NAT. Revalidation of the cloze procedure as a measure of the instructional level for

high school students. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 144-149. (IV-18)

Utilizes 196 high school students from 3 states in testing the cloze percentage scores corresponding to instructional levels.

300. PETTIT, NEILA T., & COCKRIEL, IRVIN W. A factor study of the Literal Reading Comprehension Test and the Inferential Reading Comprehension Test. *Journal of Reading Behavior*, April 1974, 6, 63-75. (IV-10)

Tests literal and inferential reading comprehension of 533 sixth graders and factor analyzes the data.

301. PETTY, WALTER T.; MURPHY, J. BRIEN; & MOHAN, MADAN. Spelling achievement and the initial teaching alphabet: analysis of errors. *The Elementary School Journal*, February 1974, 74, 309-313. (V-6)

Compares the number and types of spelling errors of 573 third, fourth, and fifth grade pupils who learned to read using a modified i.t.a.

302. PIKULSKI, JOHN J. Assessment of pre-reading skills: a review of frequently employed measures. *Reading World*, March 1974, *13*, 171-197. (I)

Reviews and discusses research related to several widely used instruments for evaluating a variety of prereading skills in young children.

303. PIKULSKI, JOHN. Predicting sixth grade achievement by first grade scores. *The Reading Teacher*, December 1973, 27, 284-287. (V-11)

Tests the predictability of 3 readiness tests for 2 approaches to teaching reading. Subjects were 433 pupils in sixth grade.

304. PIKULSKI, JOHN J. The validity of three brief measures of intelligence for disabled readers. *The Journal of Educational Research*, October 1973, 67, 67-68. (V-11)

Tests the validity of 3 easily administered measures of intelligence with the WISC. Uses 45 boys and 14 girls (ranging in age from 7-6 to 14-7) with reading problems.

305. PORTERFIELD, DENZIL. Influence of inquiry-discovery science preparation on questioning behavior of reading teachers. *The Reading Teacher*, March 1974, 27, 589-593. (II)

Studies differences in types of questions asked while teaching reading by 8 second grade and 8 fourth grade teachers educated in the

Science Curriculum Improvement Study and a control group of 16 teachers who were not given special training.

306. POWERS, HUGH W. S. Dietary measures to improve behavior and achievement. *Academic Therapy*, Winter 1973/1974, *9*, 203-214. (IV-1)

Presents a report on the effect of diet and caloric intake on educational and behavioral difficulties. Nine representative cases from a group of 260 are given.

307. PROGER, BARTON B.; CARTER, CEDRIC E., JR.; MANN, LESTER; TAYLOR, RAYMOND G., JR.; BAYUK, ROBERT J., JR.; MORRIS, VERNON R.; & RECKLESS, DAVID E. Advance and concurrent organizers for detailed verbal passages used with elementary school pupils. *The Journal of Educational Research*, July-August 1973, *66*, 451-456. (IV-10)

Compares 4 types of advance organizers with a control group on comprehension of a selection, then examines positions of organizers in relation to test anxiety of sixth graders.

308. PURVES, ALAN C. *Literature education in ten countries*. New York: John Wiley & Sons, 1973. (V-2)

Surveys the performance of students, ages 14 and 18, in 9 countries with relation to their achievement in literature. Involves 1,976 schools and 50,303 students.

309. RAMANAUSKAS, SIGITA; & BURROW, WILL H. WISC profiles: above average and MR good and poor readers. Mental Retardation, April 1973, *11*, 12-14. (IV-3)

Examines WISC profiles of 97 average and mentally retarded children in terms of their performance on a reading achievement test.

310. RANKIN, EARL F. *The measurement of reading flexibility*. Newark, Delaware: International Reading Association, 1974. (I)

Reviews and critiques the literature on measuring reading flexibility. Makes recommendations for needed research and development on the process of measuring flexibility based on a proposed model.

311. RARICK, GALEN R. Differences between daily newspaper subscribers and nonsubscribers. *Journalism Quarterly*, Summer 1973, *50*, 265-270. (III-4)

Conducts a survey of 225 subscribers and 99 nonsubscribers of a newspaper to distinguish—according to 3 indices (breadwinner, respondent activity, and household index)—differences between these 2 groups.

312. RAYGOR, ROBIN. An exploratory film study of perceptual unit size and position in reading. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 112-118. (IV-6)

Explores the ability of 36 undergraduates to read sentences on film with varying perceptual unit sizes and positions.

313. READ, CHARLES. Children's judgements of phonetic similarities in relation to English spelling. *Language Learning*, June 1973, 23, 17-38. (IV-7)

Analyzes the performance of 240 K-2 graders and 32 adults on tasks requiring a judgement concerning which of 2 real words "sounds more like" a third, non-word.

314. REID, JESSIE F. The scope of the reading problem. In Jessie F. Reid (Ed.) *Reading: Problems and Practices*. London: Ward Lock, 1972. Pp. 37-43. (I)

Reviews 10 studies which sought to survey the extent of backwardness and retardation in reading and discusses their quantitative implications.

315. RICHARDSON, ELLIS; WINSBERG, BERTRAND G.; & BIALER, IRV. Assessment of two methods of teaching phonic skills to neuropsychiatrically impaired children. *Journal of Learning Disabilities*, December 1973, 6, 628-635. (V-10)

Compares the efficiency of 2 phonics-based approaches in teaching phonics skills to 18 severely retarded male readers aged 8 to 16.

316. RICHMOND, BERT. The effect of orienting materials in identifying supporting ideas by retarded and normal subjects. *Journal of Research and Development in Education*, 1973, 6, monograph, 155-159. (VI)

Investigates the influence of orienting materials on identifying specific ideas. Uses 30 retardates (CA 10 to 16.9, MA 8 to 11), 30 MA equated normals and 30 CA equated normals.

317. RILEY, SAM G. Pretrial publicity: a field study. *Journalism Quarterly*, Spring 1973, 50, 17-23. (III-16)

Interviews 183 potential jurors from 3 cities in order to determine whether the effect of knowledge about a crime gained through newspaper articles affected prejudgement of jurors.

318. RISKO, VICTORIA JOYCE. Relate auditory discrimination to reading achievement. *Reading World*, October 1973, *13*, 42-51. (IV-7)

Presents various sounds that were phonetically categorized in a checklist format to 81 grade 1-3 pupils and correlates performance on this auditory discrimination task with reading achievement.

319. ROBINSON, MARION E., & SCHWARTZ, LINDI B. Visuo-motor skills and reading ability: a longitudinal study. *Developmental Medicine and Child Neurology*. June 1973, *15*, 281-286. (IV-6)

Identifies 41 first graders with perceptual deficits and 23 randomly selected controls, then re-examines these children at end of third grade in terms of persistence of perceptual deficits and their effects on reading achievement.

320. ROBINSON, RICHARD D. An introduction to the cloze procedure: an annotated bibliography. Newark, Delaware: The International Reading Association, 1972. (I)

Presents an annotated bibliography on the cloze procedure including research and reviews of research.

321. ROEDER, HAROLD H.; BEAL, DALLAS K.; & ELLER, WILLIAM. What Johnny knows that teacher educators don't. *Journal of Research and Development in Education*, Fall 1973, 7, 3-10. (II)

Ascertains the number of 4 year college and universities in the U.S. requiring education curricula students to take at least one teaching of reading course.

322. ROGERS, A. ROBERT. Canadian literature in American libraries. *The Library Quarterly*, January 1973, 43, 1-26. (III-10)

Describes the acquisition of Canadian literature by American libraries.

323. ROSEN, MARVIN; FLOOR, LUCRETIA; & BAXTER, DONALD. IQ, academic achievement and community adjustment after discharge from the institution. *Mental Retardation*, April 1974, *12*, 51-53. (VI)

Investigates the relationships among achievement (including reading) and intelligence in 50 adult retardates.

324. ROSENTHAL, JOSEPH H. Self-esteem in dyslexic children. *Academic Therapy*, Fall 1973, *9*, 27-39. (IV-14)

Tests 20 dyslexic, 20 normal, and 20 asthmatic boys to see whether they could be differentiated through subjective self-esteem tests and to see if informing families of dyslexics about the nature of reading problems had any positive effect on self concept.

325. ROSNER, JEROME. Auditory analysis training with prereaders. *The Reading Teacher*, January 1974, 27, 379-384. (V-4)

Investigates the effect of teaching auditory analysis skills to 26 preschool children (mean CA, 50 months) and 119 kindergarten children (mean CA, 63-64 months).

326. ROSNER, JEROME. Visual analysis training with preschool children. *Journal of the American Optometric Association*, May 1974, 45, 584-591. (V-4)

Tests the effects of implementing a standardized visual motor testing and training program with 61 preschool age children and 144 kindergartners.

327. ROSSMAN, JEAN F. Remedial readers: did parents read to them at home? *Journal of Reading*, May 1974, 17, 622-625. (IV-14)

Surveys 261 high school remedial, average, and superior readers to determine any correlations between reading and other experiences, especially that of being read to by their parents.

328. ROWELL, C. GLENNON. An investigation of factors related to change in attitude toward reading. *Journal of Reading Behavior*, Fall 1972/1973, 5, 266-272. (IV-14)

Determines the relationship between change in reading attitudes and achievement, sex, socioeconomic status, and age. A sample of 40 grade 4-8 pupils in a corrective reading program was included.

329. RUBENSTEIN, HERBERT; LEWIS, SPAFFORD S.; & RUBENSTEIN, MOLLIE A. Evidence for phonetic recoding in visual word recognition. *Journal of Verbal Learning and Verbal Behavior*, December 1971, 6, 645-657. (IV-9)

Analyzes the role of auditory/articulatory recoding in the world recognition processes of 89 college subjects in 3 separate experiments.

330. RUBIN, DAVID M. Access to environmental information: orchestrated confusion in atomic energy. In David M. Rubin & David P. Sachs (Eds.) *Mass media and the environment: water resources, land use and atomic energy in California*. New York: Praeger, 1973. Pp. 150-190. (III-2)

Addresses various problems concerned with information about nuclear power plants and the press coverage of these. Presents the results of a national poll of editors, utility executives, and environmentalists related to information access.

331. RUBINO, C. A., & MINDEN, H. A. An analysis of eye-movements in children with a reading disability. *Cortex*, June 1973, *9*, 217-220. (IV-14)

Analyzes 23 learning disabled children who averaged 11 years of age in terms of 6 components of eye movement and compares these data to the performance of 23 controls.

332. RUGEL, ROBERT P. WISC subtest scores of disabled readers: a review with respect to Bannatyne's recategorization. *Journal of Learning Disabilities*, January 1974, 7, 48-55. (I)

Reviews 25 published and unpublished studies of the WISC subtest scores of disabled readers to determine the viability of recategorizing the scores into spatial, conceptual, and sequential categories.

333. RUMELHART, DAVID E., & SIPLE, PATRICIA. Process of recognizing tachistoscopically presented words. *Psychological Review*, March 1974, *81*, 99-118. (IV-6)

Tests aspects of a multicomponent model of world recognition by tachistoscopically presenting 726 three-letter strings to 5 undergraduates and analyzing their recognition by string frequency, by letter predictability, and by letter confusability.

334. RUTHERFORD, WILLIAM L., & WEAVER, SUSAN W. Preferences of elementary teachers for preservice and inservice training in the teaching of reading. *The Journal of Educational Research*, February 1974, 67, 271-275. (II)

Identifies the preferences of 488 elementary reading teachers in Austin, Texas, and compares their needs with those in another geographic locale.

335. RUTTER, M., & YULE, W. Reading retardation and antisocial behavior—the nature of the association. In Jessie F. Reid (Ed.) *Reading: Problems and Practices*. London: Ward Lock, 1972. Pp. 94-108. (IV-14)

Summarizes a study on the relationship of severe reading retardation with antisocial behavior in children, ages 9-10, and discusses possible approaches to the problem.

336. RYAN, MICHAEL. News content, geographical origin and perceived media credibility. *Journalism Quarterly*, Summer 1973, 50, 312-318. (III-1)

Studies responses of 73 adults to a questionnaire ascertaining the credibility of television vs. newspapers.

337. RYSTROM, RICHARD. Perceptions of vowel letter-sound relationships by first grade children. *Reading Research Quarterly*, 1973/1974, 9(2), 170-185. (IV-5)

Discovers the strategies 63 first grade children use in regular classrooms when learning to link letters and sounds and notes different dialect speakers learn differently.

338. SAARIO, TERRY N.; JACKLIN, CAROL NAGY; & TITTLE, CAROL KEHR. Sex role stereotyping in the public schools. *Harvard Educational Review*, August 1973, 43, 386-416. (III-2)

Examines elementary school basal readers, educational achievement tests, and differential curricular requirements for boys and girls to determine the extent sex role stereotyping exists in each.

339. SACHS, JACKQUELINE S. Memory in reading and listening to discourse. *Memory and Cognition*, January 1974, 2, 95-100. (IV-4)

Compares retention patterns in reading and listening to semantically and syntactically changed sentences, using 240 college students.

340. SAHIN, HALUK. Turkish politics in *New York Times*: a comparative content analysis. *Journalism Quarterly*, Winter 1973, 50, 685-689. (III-2)

Analyzes the content of political news of Turkey published during 2 four-year periods in *The New York Times*.

341. SAMUELS, S. JAY, & ANDERSON, ROGER H. Visual recognition memory, paired-associate learning, and reading achievement. *Journal of Educational Psychology*, October 1973, 65, 160-167. (IV-6)

Correlates visual memory, performance on paired-associate tasks, intelligence, and reading achievement of 56 second graders.

342. SAMUELS, S. JAY; BIESBROOK, EDIEANN; & TERRY, PAMELA R. The effect of pictures on children's attitudes toward presented stories. *The Journal of Educational Research*, February 1974, 67, 243-246. (IV-17)

Studies the attitudes of 54 second grade beginning readers towards stories with 2 types of illustrations and with none.

343. SAMUELS, S. JAY, & TURNURE, JAMES E. Attention and reading achievement in first-grade boys and girls. *Journal of Educational Psychology*, February 1974, 66, 29-32. (IV-2)

Compares 53 first grade boys and 35 first grade girls on measures of attentiveness and word recognition, then correlates these 2 variables while controlling for readiness.

344. SANDMAN, PETER M. Environmental advertising and social responsibility. In David M. Rubin & David P. Sachs (Eds.) *Mass media and the environment: water resources, land use and atomic energy in California*. New York: Praeger, 1973. Pp. 114-149. (III-12)

Presents examples of advertising labelled as eco-pornography. Discusses the responsibility of the media in relation to such ads.

345. SAPHIER, J. D. The relation of perceptual-motor skills to learning and school success. *Journal of Learning Disabilities*, November 1973, 6, 583-592. (I)

Presents a review of research examining the relationship between measurable perceptual-motor skills in young children and academic success.

346. SCHELLY, JOAN DU BOSE. Exposure method and concept identification among retarded and normal subjects. *Journal of Research and Development in Education*, 1973, 6, monograph, 138-143. (VI)

Examines the proficiency of school children in identifying 3 concepts via 2 conditions: simultaneous vs. successive exposure. Subjects were 30 retardates (CA 10 to 16.9, MA 8 to 11), 30 MA equated normals and 30 CA equated normals.

347. SCHERWITZKY, MARJORIE. Reading in the kindergarten: a survey in Virginia. *Young Children*, March 1974, 29, 161-169. (V-1)

Reports results of 354 replies by kindergarten teachers to a questionnaire seeking formation on trends relative to pre-first grade reading instruction.

348. SCHILTZ, TIMOTHY; SIGELMAN, LEE; & NEAL, ROBERT. Perspective of managing editors on coverage of foreign policy news. *Journalism Quarterly*, Winter 1973, 50, 716-721. (III-12)

Investigates the responses of 140 managing editors of U.S. newspapers relative to the effect they have on readership of foreign policy news.

349. SERWER, BLANCHE L.; SHAPIRO, BERNARD J.; & SHAPIRO, PHYLLIS P. The comparative effectiveness of four methods of instruction on the achievement of children with specific learning disabilities. *The Journal of Special Education*, Fall 1973, 7, 241-249. (V-10)

Examines the relative effectiveness of a skills approach, a perceptual-motor approach, a combined approach, and a non-

instructional approach to teaching reading to 62 previously screened "high-risk" kindergartners.

350. SHACHTER, JAQUELINE N. The effect of studying literary translations on sixth-grade pupils' knowledge of Mexican culture. *Social Education*, February 1972, 36, 162-167, 179. (III-16)

Compares the effect of using translations of Mexican literature as opposed to more traditional materials on sixth-graders' knowledge of Mexican culture. A total of 206 pupils from 3 elementary schools were used.

351. SHAMI, MOHAMMAD A. A., & HERSHKOWITZ, MARTIN. Relative importance of "mastery of reading skills" as a goal of public education. *Journal of Reading Behavior*, April 1974, 6, 89-97. (V-1)

Presents the findings of a study of educational goals in the state of Maryland based on a questionnaire survey of students, educators, parents, general public, and other groups.

352. SHARON, AMIEL T. Racial differences in newspaper readership. *Public Opinion Quarterly*, Winter 1973/1974, 37, 611-617. (III-4)

Studies the racial differences in newspaper reading among 5,067 low income adults (16 years or older).

353. SHARON, AMIEL T. What do adults read? *Reading Research Quarterly*, 1973/1974, 9(2), 148-169. (III-6)

Surveys the reading habits of 5,067 adults nationally.

354. SHAW, EUGENE F. Media credibility: taking the measure of a measure. *Journalism Quarterly*, Summer 1973, 50, 306-311. (III-1)

Analyzes questionnaire responses of 656 college students as to the most reliable media source.

355. SHELDON, WILLIAM D.; LASHINGER, DONALD R.; & CARNEY, JOHN J. A summary of research studies relating to language arts in elementary education: 1972. *Elementary English*, November/December 1973, 50, 1261-1307. (I)

Summarizes 177 research studies dealing mostly with reading instruction. These studies were reported in 52 journals from January, 1972, to December, 1972, and categorized into 11 basic groups.

356. SHORE, ROBERT E., & MARASCUILO, LEONARD. Programmed approach vs. conventional approach using a highly consistent sound-symbol system of reading in 3 primary grades. *Califor-*

nia Journal of Educational Research, January 1974, 25, 11-31. (V-5)

Compares 460 first through third graders in learning to read under conditions of analytic, synthetic, and audio-supplemented synthetic methods of beginning reading; and analyzes the results in terms of grade level, sex, mental ability, and 6 indices of reading achievement.

357. SIEGEL, ALEXANDER W., & ALLIK, JUDITH P. A developmental study of visual and auditory short-term memory. *Journal of Verbal Learning and Verbal Behavior*, August 1973, *12*, 409-418. (IV-4)

Explores the difference in recall according to mode of presentation of pictures and tape recordings of common objects in 64 subjects at kindergarten, second grade, fifth grade, and adults levels.

358. SILLER, FRED H., & JONES, VERNON J. Newspaper campaign audience segments. *Journal of Advertising Research*, June 1973, *13*, 27-31. (III-17)

Studies newspaper reading habits of 402 subjects 15 years and older in an attempt to identify audience segments in order to minimize advertising overlap.

359. SILVERMAN, FRANKLIN H., & WILLIAMS, DEAN E. Use of revision by elementary-school stutterers and nonstutterers during oral reading. *Journal of Speech and Hearing Research*. December 1973, *16*, 584-585. (IV-11)

Investigates the phenomenon of fewer self-corrections in stutterers than nonstutterers by examining 135 second through sixth grade pupils, half of whom were stutterers.

360. SLOAN, LOUISE L., & HABEL, ADELAIDE. Reading speeds with textbooks in large and in standard print. *The Sight-Saving Review*, Summer 1973, *43*, 107-111. (VI)

Investigates and compares data on speeds of reading of large and small print for 22 partially sighted printed readers, 18 in grades 5-12; and 3 ages 20-25.

361. SMITH, ARTHUR E. The effectiveness of training students to generate their own questions prior to reading. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 71-77. (V-6)

Measures the ability of 116 seventh grade students to generate their own prereading questions.

362. SMITH, ELMER L. Use of pre-outline organizer in reading textbook assignments. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 83-85. (V-8)

Tests the effect of a pre-outline in aiding 43 low reading ability subjects to read textbooks.

363. SMITH, HELEN K. Critical reading. In Robert Karlin (Ed.) Reading for all. *Proceedings of the Fourth IRA World Congress on Reading*, 1972. Pp. 163-172. (I)

Presents and summarizes studies in critical reading and their educational implications.

364. SMITH, RICHARD J. The physiology of reading. *The Journal of Educational Research*, May-June 1974, 67, 397-402. (I)

Summarizes findings from 27 studies on physiology and reading appearing in the literature between 1933 and 1973.

365. SMITH, WILLIAM L. The controlled instrument procedure for studying the effect of syntactic sophistication on reading: a second study. *Journal of Reading Behavior*, Fall 1972/1973, 5, 242-251. (IV-10)

Examines the comprehension of material written near the productive syntactic level of 30 subjects in each grade from fourth through twelfth and repeats the "Aluminum" experiment with a new passage in simpler vocabulary.

366. SOUTHGATE, VERA, & LEWIS, CHRISTINE Y. How important is the infant reading scheme? *Reading*, June 1973, 7, 4-13. (V-5)

Observes and records the behavior of 16 infant school children relative to the amount of time spent directly related to the reading program used and time spent on other activities.

367. SOUTHWELL, P. R. The initial teaching alphabet. *Developmental Medicine and Child Neurology*, December 1973, *15*, 794-799. (I)

Reviews research dealing with the value of i.t.a. as a method of teaching beginning reading.

368. SPACHE, GEORGE D. Psychological and cultural factors in learning to read. In Robert Karlin (Ed.) Reading For All. *Proceedings of the Fourth IRA World Congress on Reading*, 1972. Pp. 43-50. (I)

Summarizes implications of research which arise from a multidisciplinary approach to reading instruction.

369. SPOEHR, KATHRYN TROYER, & SMITH, EDWARD E. The role of syllables in perceptual processing. *Cognitive Psychology*, July 1973, 5, 71-89. (IV-9)

Analyzes the perception of one- and 2-syllable words in order to determine the role played by subvocalization in the accuracy of the perception of words by 26 undergraduates.

370. STAFFORD, JERRY. Oral reading diagnosis and purposes for reading. *Reading World*, October 1973, *13*, 5-12. (IV-11)

Examines efficiency of oral reading of 45 third and 45 sixth graders under 3 prestated purposes for reading.

371. STANLEY, GORDON, & HALL, RODNEY. Short-term visual information processing in dyslexics. *Child Development*, December 1973, 44, 841-844. (IV-6)

Investigates perceptual integration time and transfer (processing) rate in 33 dyslexics and 33 normal readers ranging in age from 8 to 12 years.

372. STAYTON, SAMUEL, & FULLER, RENEE. Reading level of retardates related to visual and auditory memory, and to paired-associate learning. *Training School Bulletin*, February 1974, 70, 202-207. (VI)

Reports the correlations between reading scores and 3 tasks including paired-associate, visual retention, and auditory retention. Subjects were 180 residents and 12 outpatients at an institution for the retarded.

373. STEPHENS, THOMAS M.; HARTMAN, A. CAROL; & COOPER, JOHN O. Directive teaching of reading with low-achieving first- and second-year students. *The Journal of Special Education*, Summer 1973, 7, 187-196. (V-5)

Assigns 108 first and second graders to 2 treatment conditions which were based on systematic procedures for teaching reading or a control group in an attempt to determine the effect of these procedures.

374. STEVENSON, ROBERT L. Cross-cultural validation of a readership prediction technique. *Journalism Quarterly*, Winter 1973, 50, 690-696. (III-4)

Presents results of 3 studies done in the Philippines, Venezuela, and Argentina showing that title rating is a method of measuring content interest.

375. STICHT, THOMAS G.; CAYLOR, JOHN S.; KERN, RICHARD P.; & FOX, LYNN C. Project REALISTIC: determination of adult

functional literacy skill levels. *Reading Research Quarterly*, Spring 1972, 7, 424-465. (III-9)

Attempts to determine functional literacy levels for selected army jobs which have civilian counterparts. Almost 1,600 men were used as subjects.

376. STOLL, PATRICIA DONATH. A study of the construct and criterion-related validity of the *Stanford Diagnostic Reading Test*. *Journal of Educational Research*, December 1972, 66, 184-189. (V-11)

Analyzes the construct of a standardized reading test and relates subtests to scores on other tests of fourth and fifth graders reading below level.

377. STRAG, GERALD A., & RICHMOND, BERT O. Auditory discrimination techniques for young children. *The Elementary School Journal*, May 1973, 73, 447-454. (IV-7)

Studies the effectiveness of 2 instructional methods purporting to facilitate auditory discrimination. Randomly assigns 24 boys and 24 girls from grades 1 and 2 to experimental and control groups.

378. STRICKLAND, DOROTHY S. A program for linguistically different, black children. *Research in the Teaching of English*, Spring, 1973, 7, 79-86. (V-4)

Explores the effects of a special program emphasizing oral language activities on the reading readiness of 94 linguistically different, black kindergarten children.

379. STROLL, JOHANNA C., & BLIESMER, EMERY P. Practice effects of varying study question positions on retention of learning-handicapped students. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 62-70. (VI)

Tests 123 subjects, ages 9 to 18, who were socially-emotionally disturbed to see the effect study-guide questions have on learning and retention.

380. SWALM, JAMES E., & COX, GORDON L. A formalized diagnostic approach to study skills instruction for specially-admitted college freshmen. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 105-110. (V-8)

Examines the effect of reading instruction upon a formalized diagnostic program using 98 freshman students.

381. SWALM, JAMES, & KLING, MARTIN. Speed reading in the elementary school. *The Elementary School Journal*, December 1973, 74, 158-164. (V-6)

Compares the effects of timed reading drills and free reading for increased reading rates of 40 pupils from grade 5 and 36 pupils from grade 6.

382. TASCHOW, HORST G. Raw score method of the residual gain procedure versus the crude gain method in measuring reading improvement. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 169-177. (V-11)

Investigates the statistical significance of residual gain scores over crude gain scores from pretest and post test raw scores in vocabulary and comprehension on a reading test taken by 158 university freshmen and sophomores.

383. TAYLOR, JOHN F., & GRAHAM, JOHN R. A simplified MMPI form with reduced reading difficulty level. *Journal of Clinical Psychology*, April 1974, 30, 182-185. (III-3)

Reports a study in which 68 college students were used to validate a form of the MMPI for use with subjects of low reading ability.

384. TAYLOR, J. J. The reading of comics by secondary school pupils. *Use of English*, Autumn 1972, 24, 11-15. (IV-17)

Analyzes the magazine reading habits of 2,000 English school children from 2 grammar and 2 secondary schools, and categorizes and analyzes the magazines themselves.

385. TAYLOR, J. J. The voluntary book reading habits of secondary school pupils. *The Use of English*, Autumn 1973, 25, 5-12, 16. (IV-17)

Reviews studies of book reading habits of school children, and describes results of a survey of 2,000 high school pupils' book reading frequency and interest patterns according to age and sex.

386. TAYLOR, J. J. The voluntary reading habits of secondary school pupils. *Reading*, December 1973, 7, 11-18. (IV-17)

Investigates the leisure time reading habits and television viewing of 1,536 boys and girls during the first 4 years of 2 grammar schools and of 2 secondary modern schools.

387. THOMPSON, RICHARD F. Multivariate analysis: new light on reading in literature instruction. *Journal of Reading*, April 1974, *17*, 538-545. (I)

Reanalyzes and discusses data from a 1962 study comparing instruction organized around themes to that around literary types. Points out the need to use more discriminating statistical procedures.

388. THOMSON, JOAN S. Effects of attack and commitment on belief and stress. *Journalism Quarterly*, Autumn 1972, 49, 437-445; 459. (III-15)

Studies the effect of 2 variables attacking a journalist's belief on belief change and stress levels of readers. A total of 99 journalism students served as subjects.

389. THORNDIKE, ROBERT L. *Reading comprehension education in fifteen countries*. New York: John Wiley & Sons, 1973. (V-2)

Measures the reading achievement and factors related to achievement in a cross-national study of 15 countries using 3 student populations: 10 year olds, 14 year olds, and students in the final year of secondary education. Samples over 100,000 subjects.

390. THWAITE, MARY F. *From primer to pleasure in reading*. Boston: The Horn Book, 1972. (III-14)

Presents a history of children's books of the past and those of today in England and 10 other countries.

391. TILLMAN, CHESTER E. Four-year college reading improvement programs and grades: an annotated review, 1945-1971. *Journal of Reading Behavior*, Spring 1973, 5, 100-109. (K)

Annotates 31 studies evaluating 4-year college reading programs.

392. TITTLE, CAROL KEHR. Women and educational testing. *Phi Delta Kappan*, October 1973, 55, 118-119. (III-2)

Analyzes 8 achievement test batteries for sex bias.

393. TUCKER, JACQUELINE. Amount of coding in learning of homonyms by retarded and normal pupils. *Journal of Research and Development in Education*, 1973, 6, monograph, 113-118. (VI)

Examines the role of amount of coding distinctive features in the learning of homonyms with 3 groups of 30 subjects each: (retardates CA 10 to 16.9, MA 8 to 11, CA equated normal and MA equated normal).

394. TURNER, CAROLINE S.; ZAIS, EDITH; & GATEWOOD, LEN TROTTER. The effect of a developmental program on university grades. *Journal of Reading*, April 1974, *17*, 531-537. (V-8)

Studies the effect on 379 college students of a learning development program. An additional 379 students were used as a control group

395. TYLER, JAMES LARRY. Modality preference and reading task performance among the mildly retarded. *Training School Bulletin*, February 1974, *70*, 208-214. (VI)

Studies 44 retarded subjects aged 7 to 10 in relation to the effect of reading instruction based on the subjects' visual or auditory preferences.

396. VAN ZOOST, B. L., & JACKSON, B. T. Effects of self-monitoring and self-administered reinforcement on study behaviors. *The Journal of Educational Research*, January 1974, 67, 216-218. (IV-13)

Investigates the effectiveness of self reinforcement of monitoring study habits with 43 college students.

397. VAVOULIS, ANASTASIA, & RAYGOR, ALTON L. The training of college reading and study skills specialists a survey of expert opinion. In Phil L. Nacke (Ed.) Programs and practices for college reading. *Twenty-second Yearbook of the National Reading Conference*, 1973, 2. Pp. 163-171. (II)

Analyzes questionnaire responses of 35 experts on courses to be included in a college reading specialist program.

398. VELLUTINO, FRANK R.; STEGER, JOSEPH A.; & KANDEL, GILLRAY. Reading disability: an investigation of the perceptual deficit hypothesis. *Cortex*, March 1972, *8*, 106-117. (IV-14)

Contrasts the visual-motor and oral encoding abilities of 68 normal and disabled readers across grades 3 through 8.

399. VERNON, M. D. The effect of motivational and emotional factors on learning to read. In Jessie F. Reid (Ed.) *Reading: Problems and Practices*. London: Ward Lock, 1972. Pp. 47-64. (I)

Discusses and reviews 42 studies relating to the effect of motivation and emotional factors on success in reading.

400. VERNON, M. D. *Reading and its difficulties*. London: Cambridge University Press, 1971. (I)

Studies and assesses the experimental and clinical observations of the psychological process related to normal and backward

readers. The author also draws some conclusions from the observations.

401. VERNON, McCAY. Relationship of thought, language, and non verbal communication to reading. In Malcolm P. Douglass (Ed.) Claremont reading conference. *Thirty-sixth Yearbook*, 1972. Pp. 137-149. (I)

Discusses and reviews the literature in 3 widely divergent areas: thought, language, and non verbal communication and their role in reading.

402. VOGEL, SUSAN A. Syntactic abilities in normal and dyslexic children. *Journal of Learning Disabilities*, February 1974, 7, 103-109. (IV-8)

Investigates the syntactic abilities in oral language of 20 normal and 20 reading retarded 7- and 8-year-old boys.

403. VUKELICH, CAROL. Language arts in early childhood education. *Elementary English*, February 1974, 51, 300-309, 315. (I)

Reviews the research literature in the *Education Index* from January 1968 to June 1973 relative to language arts for preschool through grade 3.

404. WAINER, HOWARD, & BERG, WILLIAM. The dimensions of DeMaupassant: a multidimensional analysis of students' perception of literature. *American Educational Research Journal*, Fall 1972, 9, 486-491. (III-17)

Employs multidimensional scaling techniques to determine students' perceptions of literature. Nine DeMaupassant short stories read by 35 advanced French majors were paired with each other and then scored by subjects for similarity.

405. WALKER, JANET H. Pronounceability effects on word-nonword encoding in categorization and recognition tasks. *Journal of Experimental Psychology*, September 1973, 99, 318-322. (IV-9)

Studies the ability of 8 adult subjects to recognize and categorize real and unreal words that varied in familiarity. Also determines how these abilities relate to the graphic-phonemic properties of words and the encoding processes involved.

406. WARDROP, JAMES L., & ESSEX, DIANE L. 'Vexing problems' revisited: pitfalls for the unwary researcher (a reaction to Kennedy and Weener). *Reading Research Quarterly*, Summer 1973, 8, 542-557. (I)

Critically analyzes a study which illustrated 2 out of the 3 basic problems occurring in reading research. They are: 1) control groups that do not control, and 2) design analysis mismatch.

407. WARK, DAVID M.; BROWN, JAMES I.; TOSTENRUD, DIANE; WALCH, MARY; STELLER, JUDY; & GORE, WARREN. Heart rate response by normal and test-panicky readers. In Phil L. Nacke (Ed.) Diversity in mature reading: theory and research. *Twenty-second Yearbook of the National Reading Conference*, 1973, *1*. Pp. 288-293. (IV-1)

Reports results of a series of 3 investigations, using college students, related to the effect of questions on heart rate, and test anxiety on heart rate.

408. WARNCKE, EDNA, & CALLAWAY, BYRON. If Johnny can't read, can he compute? *Reading Improvement*, Winter 1973, *10*, 34-37. (IV-14)

Correlates reading ability and ability to perform fundamental arithmetic computations in 75 second through fourth graders.

409. WEAVER, DAVID H., & WILHOIT, G. CLEVELAND. News magazine visibility of senators. *Journalism Quarterly*, Spring 1974, *51*, 67-72. (III-2)

Investigates the variables involved in the coverage of U.S. senators by analyzing the contents of 3 major news magazines.

410. WEINTRAUB, SAMUEL; ROBINSON, HELEN M.; SMITH, HELEN K.; & ROSER, NANCY L. Summary of investigations relating to reading, July 1, 1972, to June 30, 1973. *Reading Research Quarterly*, 1973-1974, *9*(3), 247-513.

Summarizes 369 published research reports in reading. Includes an annotated bibliography.

411. WEISS, CAROL H. What America's leaders read. *The Public Opinion Quarterly*, Spring 1974, *38*, 1-22. (III-4)

Interviews 545 influential Americans to see the effect mass media has on opinion-forming and decision-making.

412. WHISLER, NANCY G. Visual memory training and its effects on visual discrimination skill and total reading ability. *Elementary English*, September 1973, *50*, 936-938. (IV-6)

Tests the null hypothesis that there is no significant difference in visual discrimination skill or total reading ability for 152 first graders who partook in a visual memory program, compared to 143 controls.

413. WILEY, DAVID E., & HARNISCHFEGER, ANNEGRET. Explosion of a myth: quantity of schooling and exposure to instruction,

major educational vehicles. *Educational Researcher*, April 1974, 3, 7-12. (I)

Presents a review of a study analyzing the effect of schooling on achievement in 3 areas: verbal ability, reading comprehension, and mathematics. Presents a working model.

414. WILLIAMS, CHARLOTTE. Stimulus familiarization and retarded and normal pupils' synonyms learning. *Journal of Research and Development in Education*, 1973, 6, monograph, 95-100. (VI)

Examines the role of familiarity in the learning of synonyms using 30 subjects in each of 3 groups: retarded (CA = 10 to 16.9 and MA = 8 to 11), younger normal equated on MA with retardates, and older normal equated for CA with retardates.

415. WILSON, C. EDWARD. The effect of medium on loss of information. *Journalism Quarterly*, Spring 1974, 51, 111-115. (III-1)

Examines the effect of news story length and interest on unaided recall in newspaper, television, and radio. Uses 418 college students as subjects.

416. WILSON, JOHN D., & SPANGLER, PAUL F. The Peabody Individual Achievement Test as a clinical tool. *Journal of Learning Disabilities*, June-July 1974, 7, 384-387. (V-11)

Assesses the value of the Peabody test as an accurate measure and screening device of educational achievement. Uses 83 subjects with either learning disabilities or multiple physical or sensory handicaps.

417. WILSON, MICHELE DRISKO, & MCREYNOLDS, LEIJA V. A procedure for increasing oral reading rate in hard-of-hearing children. *Journal of Applied Behavior Analysis*, Summer 1973, 6, 231-239. (VI)

Examines the ability of 4 auditory-handicapped children aged 7-15 to be trained, via a token system of reinforcement coupled with a rate-increasing device, to increase their oral reading speed.

418. WINDHAUSER, JOHN W. Content patterns of editorials in Ohio metropolitan dailies. *Journalism Quarterly*, Autumn 1973, 50, 562-567. (III-2)

Analyzes the content of 10 Ohio dailies' editorials which reflect the views of the newspaper.

419. WOODEN, SHARON LEE, & PETTIBONE, TIMOTHY J. A comparative study of three beginning reading programs for the

Spanish-speaking child. *Journal of Reading Behavior*, Summer 1973, 5, 192-199. (V-5)

Investigates the effectiveness of 3 approaches to teaching 522 Spanish-speaking children to read.

420. WRIGHT, PETER L. Analyzing media effects on advertising responses. *The Public Opinion Quarterly*, Summer 1974, 38, 192-205. (III-1)

Studies the effect of media transmission form on communication response to advertising. A total of 160 housewives are used as subjects.

421. WULF, KATHLEEN M. A study of Ausubel's proactive hypothesis. *The Journal of Psychology*, January 1974, 86, 3-11. (IV-5)

Investigates Ausubel's theory of proactive facilitation of learning similar and conflicting material in 99 eighth grade students.

422. WULFF, KENNETH R. Cognitive development in disadvantaged students. *The Journal of Educational Research*, March 1974, 67, 307-310. (IV-16)

Compares the ability of advantaged and disadvantaged pupils to think critically. A total of 300 grade 6 subjects were used.

423. YARINGTON, DAVID J., & KOTLER, SUSAN A. A study of teacher trainee choices in a performance-based reading/language arts course. *Reading World*, December 1973, *13*, 113-127. (II)

Analyzes the product choices of 401 undergraduates in education for 148 behavioral objectives in order to determine which performances were seen to be most relevant to teaching and to discover differences between subjects who had completed student teaching and subjects who had not.

424. YAWKEY, THOMAS D. Attitudes toward black Americans held by rural and urban white early childhood subjects based upon multi-ethnic social studies materials. *Journal of Negro Education*, Spring 1973, 42, 164-169. (III-15)

Administers an attitude questionnaire to 104 seven and seven-and-a-half year olds before and after reading and discussing 6 multi-ethnic texts.

425. YAWKEY, THOMAS D. Reading training and rural disadvantaged five year old children. *Reading World*, December 1973, *13*, 128-140. (V-3)

Compares the relative efficiency of teaching reading to 96 five-year-old non-readers by a part word (linguistic) or whole word (sight word) approach.

426. YOUNG, ROBERT Q. A comparison of reading and listening comprehension with rate of presentation controlled. *Audio-Visual Communication Review*, Fall 1973, *21*, 327-336. (IV-4)

Compares 211 college subjects under conditions of reading and listening comprehension and retention with rigorous control of rate variables, test procedures and data analysis.

427. YULE, W. Differential prognosis of reading backwardness and specific reading retardation. *The British Journal of Educational Psychology*, November 1973, 43, 244-248. (V-10)

Reports the preliminary results of a 5-year follow-up study of reading achievement in 155 readers and 86 retarded or under-achieving readers, all 9 to 11 years old, and compares these readers with 184 controls.

428. YULE, W.; RUTTER, M.; BERGER, J.; & THOMPSON, J. Over- and under-achievement in reading: distribution in the general population. *The British Journal of Educational Psychology*, February 1974, 44, 1-12. (IV-3)

Examines the relationship between intelligence and reading ability in 7,175 nine- through fourteen-year-old British school children.

429. ZABA, JOEL; VARLAND, VIRGINIA; GROB, PAUL; & DAVIS, TERRY. Visual data of low ranked college freshmen. *Optometric Weekly*, May 1974, 65, 415-417. (IV-1)

Investigates the visual skills of 70 college freshmen who scored low on the verbal portion of an aptitude test, and identifies the patterns of visual-skill deficits in these students.

430. ZIMET, SARA G.; ROSE, CYNTHIA; & CAMP, BONNIE W. Relationship between reading achievement and Rosenzweig Picture-Frustration study in early grades. *Psychology in the Schools*, October 1973, *10*, 433-436. (IV-15)

Correlates reading achievement of 25 first graders and the same subjects at third grade with measures of intropunitiveness and tendency to project blame.

431. ZVONAREVIC, MLADEN. The relationship between public opinion-makers and public opinion. In Allen H. Barton, Bogdan Denitch, & Charles Kadushin (Ed.) *Opinion Making Elites in Yugoslavia*. New York: Praeger Publishers, 1973. Pp. 263-281. (III-1)

Focuses on the question of the relationship between public opinion makers and the mass media, the relationship between public opinion and the newspapers, and the feedback between public opinion-makers in Yugoslavia.

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